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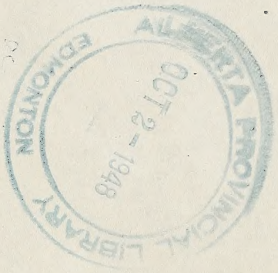

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ANNUAL REPORT

OF THE

DEPARTMENT OF LANDS AND MINES

OF THE

PROVINCE OF ALBERTA

FOR THE

FISCAL YEAR ENDED MARCH 31, 1931

Published by Order of the Legislative Assembly

EDMONTON:
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1931

Department of Lands and Mines, Edmonton.

TO THE HONOURABLE W. L. WALSH,

Lieutenant Governor of the Province of Alberta.

Sir,—

I have the honour to submit herewith the report of the Department of Lands and Mines for the fiscal year ended March 31st, 1931.

I have the honour to be, Sir,

Your obedient servant,

R. G. REID,

Minister of Lands and Mines.

TABLE OF CONTENTS

◇ ◇ ◇

Page

REPORT OF THE ACTING DEPUTY MINISTER 9

I—Provincial and School Lands

Report of the Edmonton Land Agency 14

Calgary Land Agency 16

Lethbridge Land Agency 18

Peace River Land Agency 19

Grande Prairie Land Agency 21

II—Petroleum and Natural Gas

Report of the Director of Petroleum and Natural Gas 24

III—Forestry

Report of the Director of Forestry 28

IV—Fisheries

Report of the Director of Fisheries 51

V—Administrative Office

Report of the Secretary, Department of Lands and Mines 60

DEPARTMENT OF LANDS AND MINES

Hon. R. G. Reid, Minister of Lands and Mines

1931.

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HEADS OF BRANCHES.

John Harvie	Acting Deputy Minister of Lands and Mines and Director of Lands.
W. Calder	Director of Petroleum and Natural Gas.
T. F. Blefgen	Director of Forestry.
R. T. Rodd	Director of Fisheries.
A. A. Millar	Chief Inspector, Coal Mines Act.
E. M. Gunderson	Secretary to the Department.
J. W. Stafford	Agent, Edmonton Land Agency.
M. Gossip	Agent, Calgary Land Agency.
E. F. Layton	Agent, Lethbridge Land Agency.
R. Cruickshank	Agent, Peace River Land Agency.
J. J. E. Clarke	Agent, Grande Prairie Land Agency.
F. W. Neilson	Chief Timber Inspector.
T. W. Dalkin	Draughting.

REPORT OF THE

DEPARTMENT OF LANDS AND MINES

October 1st, 1930—March 31st, 1931.

Honourable R. G. Reid,
Minister of Lands and Mines,
Edmonton, Alberta.

Sir:

I have the honour to submit the first annual report of the Department of Lands and Mines for the fiscal year ended March 31st, 1931.

The period which is reviewed constitutes only one-half of the year, dating as it does from October 1st, 1930. This date is of course significant in that it is representative of the day upon which the Natural Resources of Alberta were formally transferred to the control and administration of the Alberta Government. The report which is herewith presented to you carries an additional significance in that it constitutes for the Provincial Government archives the first report of this new and long expected administration.

The short period it covers was one of considerable importance and responsibility. It was a period which demanded not only a continuance of administration, free from complications or confusion, of the various divisions of the Department but also the installing of an efficient system which would be suitable and necessary for the new Provincial control.

Legislation was enacted during the session of the Legislature for the administration of lands, minerals, forests, fisheries and to control the drilling of oil and gas wells. In the interim period between the transfer of the resources to the Province and the proclamation bringing the legislation into force, the disposition of lands and minerals continued to be made according to the terms of the Federal legislation in force when the natural resources came under Provincial control.

The following summary shows to what extent the Province benefitted from the agreement made with the Dominion of Canada:—

Total Area of Province	163,382,400	acres	approx.
Water Area of Province	4,150,400	"	"
Land Area of Province	159,232,000	"	"
Lands Patented as at Sept. 30, 1930	42,930,000	"	"
Lands Alienated as at Sept. 30, 1930	5,314,000	"	"
Area of Unalienated Provincial Lands as at Sept. 30, 1930	84,467,170	"	"
Total Area within Forest Reserves	12,436,500	"	"
Water Area within Forest Reserves	43,000	"	"
Land Area within Forest Reserves	12,393,500	"	"
Total Area within Dominion Parks	13,434,240	"	"
Water Area within Dominion Parks	635,000	"	"
Land Area within Dominion Parks	12,799,240	"	"
Indian Reserves	1,328,090	"	"
Area of Surveyed Land including water areas but excluding Dominion Parks and Indian Reserves	70,007,000	"	"

During the period covered by this report the Department has issued twenty-three notifications conveying an acreage of 1,913.01 and a large volume of uncompleted transactions returned to the Province by the Department of the Interior still require attention. The total number of leases held in the Province for grazing purposes at the date of the transfer of the resources was 3,778, covering an area of 3,220,161 acres.

The granting of free homesteads was discontinued on the 14th of February, the Bill before the Legislature having been drafted with a view to restricted settlement of land. Immediately before discontinuing the privilege, a large number of settlers, anxious to secure land, served as a reminder of earlier days when applicants in large numbers were taking advantage of the free land settlement within the Province.

A reduction in the programme of operations in the Turner Valley oil and gas field was noticeable both before and following the transfer of Alberta's resources to Provincial control. It was not until the end of March, the completion of the first fiscal year, that the Province was able to create its own Oil and Gas Engineering Division with a Provincial staff. The final arrangements for office space and equipment were completed in Edmonton, Calgary and Lethbridge when it was possible for the administration of Petroleum and Natural Gas operations to be supervised by direct Provincial control. Prior to this date it had been necessary for this supervision to continue under Dominion organization.

On the transfer of the natural resources from the Dominion to the Provincial Government there were 17,219 petroleum and natural gas leases in force in Alberta, comprising an area of 2,263,076 acres. The total collected from rentals, fees and royalties covering Petroleum and Natural Gas for the period of this report was $198,338.80.

The drilling of deep wells for the six months period totalled 76,229 feet. Several deep wells during this time were abandoned due to complex geological conditions but it is probable that such areas may again be tested with results demonstrating the existence of oil in commercial quantities in those areas.

The depleted Bow Island gas field continues to be re-pressured from Turner Valley at the rate of about five million cubic feet per day. The total quantity forced into the ground since this activity was started, until the end of March 1931, was 1,118,391,000 cubic feet.

The question which involved the adoption of conservation methods to prevent as much as possible the wastage of natural gas, came forcibly to the front during this period and committees were formed with a view to deciding on the measures necessary to be taken.

A primary move in the transfer of the Forest Service from Dominion to Provincial control involved the question of co-operation between the old established branches and departments of the Provincial Government and the new Service. With this move the re-arrangement of the personnel—partly depleted by the Dominion Service retaining certain members of the old staff for research work—was

put into effect for the purpose of carrying on operations under the new administration.

Throughout this period an extensive programme of Unemployment Relief was carried out in the Forest areas. Eighteen camps were established in the Bow River Forest alone and the work, which employed several hundreds of men, covered a programme of road-building, improvement of lines of communication, establishment of fire lines and work of a similar nature.

Due to the scarcity of snow through the winter the fire hazard continued as a menace and created an unusual problem in this respect. Fires which occurred were extremely difficult to control with water not available and trenching in frozen ground adding a further difficulty.

Winter grazing in the Forest areas continued with little change to the previous season and forage conditions as a result of the insignificant snowfall were very satisfactory. Seeding was carried out by one of the Unemployment Relief camps in the Elbow area, which was beneficial to the general programme of re-forestation in this important watershed.

During this period an area of 1,364.46 square miles lying in the Brazeau, Bow, Clearwater and Athabasca forests was transferred to the Provincial Forest Service from the National Parks. Reasons for this transfer were principally unsuitability for park purposes or suitability for industrial development. Against these figures an area of 821.5 square miles of scenic and mountainous territory was transferred from the Forest Service to the National Parks, most of this territory lying in the Clearwater Forest.

The economic situation seriously interfered with lumbering operations during the half year. This was reflected in the total cut which for the period of this report was 14,378,663 feet board measure of lumber from licensed timber berths and 7,592,495 feet cut under permit. The situation was aggravated still further by the importation of coast fir of a lower grade than the Alberta product. Unfair competition was introduced by the fact that the B. C. product was brought in and sold at sufficiently low prices to replace much of the home wood.

The depletion of timber on the mountain slopes would seriously affect control of the water flow and the aggravation of this condition would pertain not only to Alberta but also to the Provinces of Saskatchewan and Manitoba, through which provinces the Saskatchewan River flows. The expenditure which the Province is compelled to face in the administration of the forest areas, primarily for the protection of water sources, represents a substantial part of the estimates of the Department.

The Fisheries of the Province, while showing a decrease both in the amount of fish taken and revenue obtained therefrom during the period covered by this report, were, nevertheless, in a healthy condition. The decrease, with only one or two exceptions, was attributable to the financial depression, which greatly affected our exports. Canadian whitefish have in the past been considered somewhat of a

luxury on the American markets, and the consumer has, during this period of depression, found it necessary to look for cheaper substitutes. Our exporters, therefore, were compelled, not having the markets even at reduced prices, to cut down their operations accordingly.

There has been no curtailment in the operation of the fish hatcheries or re-stocking of streams. The whitefish hatchery at Lesser Slave Lake was operated to capacity, and by arrangement with the Department of the Interior, which is now operating the game fish hatcheries within the National Parks at Banff and Waterton Lakes, the supply of game fish fry was assured for the present to re-stock the streams throughout the Province.

With the formation of the Department of Lands and Mines, the Coal-mines Inspection Branch of the Province, formerly under the control of the Executive Council, was transferred to this Department for administration of the Acts governing coal-mining operations, viz. The Coal-mines Regulation Act, The Coal-miners' Wages Security Act and The Coal Sales Act.

The Coal-mines Regulation Act in its provisions for the safe operation of coal and shale mines within the Province has under the supervision of the Chief Inspector of this Branch and the various District Inspectors in the different coal areas, been duly administered. Reports governing inspections made at stated intervals have been forwarded to the head office for consideration and are recorded in the files of the Department. These reports cover a variety of detail touching on methods of ventilation, gas detector readings, types of explosive used for coal-mining operations, sanitary conditions and other matters which are enumerated in the Act.

The Coal-miners' Wages Security Act, which requires the provision of bonds or other satisfactory security as a protective measure, is also administered by this Branch. Such measures safeguard the payment of persons employed in or about the coal-mines and exemption from these regulations may be granted only by the Board of Public Utility Commissioners for certain specific reasons.

The Coal Sales Act requires that all coal mines in the Province shall be registered by name and that all coal produced in Alberta shall be sold under such registration.

The total number of coal-mining leases in force at the date of the transfer of the resources was 627, comprising an area of 251,802 acres.

The change in Government administration brought into effect by this transfer reflects advantageously to mine operators in that it constitutes control from one direction only, instead of two, a single inspectorate and the recognition of Acts and Regulations of the Provincial Government alone.

Details covering the various technicalities of coal production, totals of exports and imports, methods of operation and visible markets are dealt with by the calendar year and are therefore not available until the close of that period.

Due to misunderstanding as to the requirements of the Province, the Department of the Interior has been very loath to part with any of the permanent records in its possession. Negotiations are at present being conducted for the transfer to the Province of the files, registers and other documents pertaining to property of which there has been disposition made, and it is anticipated that these negotiations will be successfully completed when there will come into the possession of the Department of Lands and Mines many hundreds of thousands of documents and plans now forming a part of the permanent record in Ottawa.

The various divisions of the Department of the Interior have been most considerate in furnishing to the Province information required in the setting up of new records and without this hearty co-operation it would have been impossible for your officials to have accomplished in the short space of time the numerous details that have been written into the records of the Province.

Outlines of the work of the several branches of the Department follow.

Your obedient servant,

J. HARVIE,
Acting Deputy Minister.

PROVINCIAL AND SCHOOL LANDS

REPORT OF THE EDMONTON LAND AGENCY
(J. W. STAFFORD)

The business of this office, while naturally affected by the economic situation, showed, however, a considerable revenue during the period of this report.

The following statement deals with the classification and volume of business in force as at the 1st of October, 1930:—

3,562	P. and N. G. Leases, covering	502,073 acres
257	Coal Leases, covering	102,176 acres
128	Coal Sales, covering	23,125 acres
31	Dredging Leases	
14	Quarrying Leases	
2	Quartz-mining Claims	
385	Grazing Leases, covering	940,144 acres
15	General Land Sales	
99	Timber Berths, covering	707.26 sq. miles

The number of unpatented homestead entries, applications for inspections outstanding, cultivation or grazing permits on school lands and other matters of a miscellaneous and similar nature outstanding at this date are not included in the above statement.

In addition to the above were four bituminous sand leases and two prospecting permits, comprising a total area of 10,240 acres. From these leases approximately 4,000 tons of tar sands have been mined and shipped which material has been chiefly used for experimental and road-surfacing purposes.

No operations were apparently conducted in connection with the large deposits of salt in the northern part of this district.

Other business, in addition to collections of ordinary revenue and general transactions of a routine nature, during this period, was carried out as follows:—

Homestead Entries Granted	2,229
Soldier Grant Entries	81
Applications for Grazing Leases	84
Applications for Petroleum and Natural Gas Rights	60
Applications for Coal-mining Leases	26
Prospectors' Licenses Issued	70
Quartz Claims Granted	2
Placer Claims Granted	10
Cultivation Permits Issued	5
Grazing Permits Issued	245
Timber Permits Issued	931
Number of Applications for Patent Received	129
Number of Applications for Cancellation Received	472

The different classes of revenue received during this period are as follows:—

Month	Seed Grain	Lands	Timber & Grazing	Mining Lands	School Lands	Total
Oct., 1930	$369.39	$4,060.11	$5,886.16	$23,319.00	$6,230.04	$39,864.70
Nov., 1930	43.00	5,810.25	7,309.39	14,725.99	4,697.58	32,586.21
Dec., 1930		4,394.05	7,067.07	8,989.84	2,787.91	23,238.87
Jan., 1931		3,886.77	38,319.94	23,016.87	1,866.35	67,089.93
Feb., 1931	20.00	8,778.18	4,429.64	3,123.84	1,575.28	17,926.94
Mar., 1931		720.28	15,105.60	6,578.91	2,372.79	24,777.58
	$432.39	$27,649.64	$78,117.80	$79,754.45	$19,529.95	$205,484.23

These revenues consist of royalties and rental on coal, petroleum and natural gas leases, rental on grazing leases, fees covering quartz and placer claims, homestead fees, payments for the issue of grazing, cultivation permits on school lands and business of a similar nature.

Collections covering purchased homesteads, pre-emptions, general sales and school land sales, were insignificant, affected as they were by conditions of inferior crops and low prices for farm produce.

Coal-mining operations, due to the absence of usual winter conditions, were considerably reduced, a production estimate of 650,795 tons of coal from a total of twenty-five mines is all that can be reported from this district.

Logging and lumbering operations were much curtailed owing to the depressed financial conditions of the country and the limited season caused by the exceptionally mild weather and lack of snow fall. In many cases trucks were used for the purpose of hauling logs from the bush which added materially to the cost of such operations.

The manufacture of lumber was considerably reduced owing to the very limited market and stocks of native lumber on hand are considerably in excess of that held in past years. It is anticipated, however, if conditions improve, that the demand will be stimulated and these stocks will be materially reduced.

Employment in the bush, due again to the mildness of the winter, was far from being satisfactory. A certain amount of relief was however brought about by the issue of permits to settlers in receipt of contracts from railway companies to cut ties on Provincial lands.

TIMBER PERMITS AND HAY SEIZURES

	PROVINCIAL LANDS		SCHOOL LANDS	
	Amount Authorized	Amount Cut	Amount Authorized	Amount Cut
Timber Permits Issued	870		61	
Feet Board Measure	924,180	13,035,269	1,603,807	56,207
Lineal Feet	10,310	91,449	2,700	1,160
Fence Rails	177,600	6,340		
Roof Poles	32,300	2,713		200
Fence Posts	42,320	24,478	1,800	1,130
Cords Cordwood	450	566	15	
Railway Ties	40,496	231,928	23,385	12,369
Telegraph and Telephone Poles	300	165		
Lineal Feet Mining Timber	32,992	90,526		
Piling		712		

TIMBER SEIZURES

	PROVINCIAL LANDS	SCHOOL LANDS
Number	31	2
Amount of Timber Covered Thereby (Lin. Ft. Logs)	24,454	
Lumber (B. M.)	4,010,450	
Mine Timber	9,600	
Fence Posts	1,326	275
Ties	18,442	54

HAY PERMIT SEIZURES

Number	3
Tons of Hay	56

TIMBER PRODUCTS MANUFACTURED BY HOLDERS OF TIMBER BERTHS UNDER YEARLY LICENSE AND PERMITS

	LICENSE BERTHS	PERMIT BERTHS	S. L. BERTHS
B. M. Lumber Manufactured (Ft.)	12,906,497	5,525,275	627,534
Railway Ties	5,126	296,501	37,998
Lineal Feet Piling	12,065	3,350	
Lath	554,982	190,000	
Telephone Poles		336	
Fence Posts			8,405
Cords Cordwood		93	
Slabs (Cords)	654	10	
Mine Timber			49,419

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REPORT OF THE CALGARY LAND AGENCY (M. GOSSIP)

While the business of this office for the period in question was naturally affected by the wide-spread depression, yet a large amount of work was performed and a substantial revenue received.

In order to give a general idea of the different kind and amount of work handled by the office, I have prepared a statement as shown below, outlining the classification and volume of business in force as at October 1st, 1930, viz:—

10,500	P. and N. G. Leases and Permits, covering	1,076,982 acres
291	Coal Leases, Covering	118,231 acres
220	Coal Sales, Covering	49,810 acres
3	Dredging Leases	
9	Quarrying Leases	
13	Quartz-mining Claims	
1,500	Grazing Leases, Covering	722,347 acres
683	Pre-emptions, Purchased Homesteads and General Land Sales	
53	Timber Berths, Covering	395 sq. miles

This statement does not include the number of unpatented homestead entries, applications for inspections outstanding, cultivation or grazing permits on school lands or other matters of a miscellaneous nature outstanding at the date in question.

During the period covered by this report the following business has been handled in addition to the collection of the ordinary revenue and the transaction of business of a routine nature, viz:—

Homestead Entries Granted	190
Soldier Grant Entries	11
Applications for Grazing Received and Checked	45
Applications for Petroleum and Natural Gas Rights	91
Applications for Coal-mining Leases	12
Prospectors' Licenses Issued	231
Quartz Claims Granted	47
Placer Claims Granted	1
Cultivation Permits Issued	23
Grazing Permits Issued	391
Timber Permits Issued	124
Number of Applications for Patent Received	40
Number of Applications for Cancellation Received	21

The following is a statement showing the different classes of revenue received during the six months in question. It will be noticed that there were no collections on account of seed grain after

December, 1930, caused by the fact that the collection of such amounts passed at that time to the control of the Department of Municipal Affairs:—

Month	Seed Grain	Lands	Timber & Grazing	Mining Lands	School Lands	Total
Oct., 1930	$616.05	$1,613.64	$4,780.70	$45,489.44	$3,834.99	$56,334.82
Nov., 1930		550.25	3,695.75	32,976.39	4,126.76	41,349.15
Dec., 1930	13.75	884.04	1,677.42	26,815.94	2,116.67	31,507.82
Jan., 1931		647.95	3,317.74	45,491.72	4,996.28	54,453.69
Feb., 1931		1,004.65	1,983.23	34,613.96	3,041.36	40,643.20
Mar., 1931		.60	1,912.83	22,976.72	6,215.78	31,105.93
	$629.80	$4,701.13	$17,367.67	$208,364.17	$24,331.84	$255,394.61

The above revenue is made up of royalties and rental on coal and petroleum and natural gas leases, rental on grazing leases, fees covering quartz and placer claims, homestead fees, payments for the issue of grazing and cultivation permits on school lands as well as other business of a miscellaneous nature.

Collection of amounts outstanding in respect of pre-emptions, purchased homesteads, general sales and school land sales, were very poor, caused, no doubt, by crop conditions as well as the low prices obtained for farm commodities.

Owing to the extremely mild winter, coal-mining operations were very much curtailed, it being estimated that only about 950,000 tons were produced from 88 mines operating on Provincial lands in this district.

Figures compiled in this office show that sales of naphtha and crude oil from wells operating on Provincial Lands amounted during the period to approximately 627,000 barrels, realizing $2,141,188.00, the royalty on which amounted to $107,059.00.

The scarcity of snow and difficult financial conditions curtailed logging operations in the bush almost to the point of bringing them to a standstill. In the vicinity of Rocky Mountain House it was necessary to use trucks for the purpose of hauling logs out of the bush which naturally added materially to the cost of such operations.

Very little lumber was manufactured either on licensed or permit berths and it would appear that so far as native stock is concerned, if conditions improve, and the demand is stimulated, that such stock will be very much reduced before another season comes around.

For the first time in many years there were no operations on licensed berths in the Crow's Nest Pass.

During the season, the situation as far as employment in the bush was concerned, was not very satisfactory. This situation was relieved to a certain extent by the granting of permits to settlers holding contracts from Railway Companies, to cut ties on vacant Provincial lands. Permits of this nature were issued to cut 13,628 ties which were in addition to the 50,300 ties cut on licensed and permit berths.

TIMBER AND HAY PERMITS, TIMBER SEIZURES

	PROVINCIAL LANDS	SCHOOL LANDS
Timber Permits Issued	116	8
Feet Board Measure	125,950	31,000
Lineal Feet	27,000	633
Fence Rails	23,225	
Roof Poles	5,020	
Fence Posts	4,910	
Cords Cordwood	575	31
Railway Ties	13,628	
Telegraph and Telephone Poles	30	
Lineal Feet Mining Timber	6,400	
M. Shingles		
Cords Shingle Bolts		
M. Lath		
Cords Pulpwood		

TIMBER SEIZURES

	PROVINCIAL LANDS	SCHOOL LANDS
Number	Nil	3
Amount of Timber Covered Thereby		26 cords wood

HAY PERMITS

Number	Nil	Nil
Tons of Hay	Nil	Nil

TIMBER PRODUCTS MANUFACTURED BY HOLDERS OF TIMBER BERTHS UNDER YEARLY LICENSE AND PERMITS

	LICENSE BERTHS	PERMIT BERTHS
B. M. Lumber Manufactured	1,472,166	98,808
B. M. Lumber Sold	4,427,526	193,143
Railway Ties	43,683	6,617
Lineal Feet Round Timber	51,261	2,400
Saw Logs Cut	15,440	3,500
Lath		
Shingle Bolts		
M. Shingles		
Fence Posts		
Cords Cordwood	60	
Slabs	648	
Cords Pulpwood		
Mine		

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REPORT OF THE LETHBRIDGE LAND AGENCY (E. F. LAYTON)

The transfer of the Natural Resources to the Province from Federal to Provincial control in the Lethbridge District was effected on the 1st of October, 1930, without any interruption of business or inconvenience to the public. The following comparative statement gives some idea of the work performed and revenue collected:

	Six months Ending 31st March, 1931	Six months Ending 30th Sept., 1930	Twelve Months Ending 31st March, 1930
Homestead Entries	29	99	222
Soldier Grants	1	1	4
Applications for Patent Received	20	31	74
Applications for Inspection Received	19	25	62
Entries Cancelled	27	44	98
Petroleum and Natural Gas Applications	87	531	2,452
Coal Applications	13	14	18
Revenue Collected	$106,730.15	$139,268.87	$469,087.55

The following table covers the leases and permits in the Lethbridge district during the period of this report:—

Grazing Leases, 1710, covering an area of approximately 2,600,000 acres, upon which rentals are collected semi-annually;

Coal-Mining Leases, on Crown Lands, 110, and Coal Berths on School Lands, 13;

Quarrying Leases, 15;

Miscellaneous surface Leases on Crown Lands, 6, and special Leases on School Lands, 2.

Petroleum and Natural Gas Prospecting Permits, 129;

Petroleum and Natural Gas Leases on Crown Lands, 4,500;

Petroleum and Natural Gas Berths on School Lands, 389.

Rentals on petroleum and natural gas leases are collected annually, petroleum royalties being collected monthly from producing oil wells. Returns from operating coal mines are obtained and royalties collected quarterly.

On the 1st of November, 1930, there were 488 unpatented pre-emptions in the Lethbridge district, the amount outstanding on the purchase price being $318,090.76. It is doubtful if a very large percentage of this will ever be collected.

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REPORT OF THE PEACE RIVER LAND AGENCY
(R. CRUICKSHANK)

The decrease in the business of this office from the preceding year was due to the general depression. The revenue, however, taking this into consideration, was appreciably good and many transactions were put into effect.

The statement as shown below gives a general idea of the work passed through this office, and outlines the business in force as at October 1st, 1930.

74	P. and N. G. Leases and Berths, covering approximately	26,709.6 acres
8	Quarrying Leases	

1	Domestic Coal Permit	
195	Grazing Leases, covering	71,919.40 acres
209	Time Sales and School Lands Sales	
9	License Berths (Timber), covering approximately	128.18 sq. miles
10	Portable Saw-Mill Berths	
1	Cordwood Berth	
2	Fire-killed Berths	
19	Custom Saw-Mill Berths	

Revenue in connection with Timber Berths, with the exception of the Custom Saw-Mill Berths, is collected by our Edmonton office.

The statement as shown above does not include the number of unpatented homestead entries, applications for inspections outstanding, cultivation or grazing permits on school lands, or other matters of a similar nature which were outstanding at this date.

In addition to collections of ordinary revenue and the carrying out of general business the following transactions were effected:—

Homestead Entries Granted	616
Second Homesteads	72
Soldier Grant Entries	34
Applications for Grazing Received and Pending	88
Grazing Permits Issued	39
Cultivation Permits Issued	1
Timber Permits Issued	381
Applications for Patent Received	69
Applications for Cancellation Received	128

During the period in question the different types of revenue received were as follows:—

Month	Seed Grain	Lands	Timber & Grazing	Mining Lands	School Lands	Total
Oct., 1930	.....	$2,576.98	$120.06	.....	.....	$2,697.04
Nov., 1930	.....	1,922.75	223.95	$181.78	$3.50	2,331.98
Dec., 1930	.....	3,074.40	354.29	.....	.....	3,428.69
Jan., 1931	.....	810.25	232.28	.....	40.89	1,083.42
Feb., 1931	.....	1,760.15	349.02	100.00	135.06	2,344.23
Mar., 1931	.....	490.14	265.75	.....	257.14	1,013.03
	.....	$10,634.67	$1,545.35	$281.78	$436.59	$12,898.39

The revenue as shown above consists of rentals on petroleum and natural gas leases, rental on grazing leases, homestead fees, payments of school lands grazing permits, hay permits, timber permits and other business of a miscellaneous nature.

Collections on time sales and school lands sales were very poor, owing no doubt to the low prices received for grain and other farm produce.

Coal-mining was not developed owing to lack of market and abundance of firewood. Notwithstanding the fact that settlers were allowed to cut firewood for their own use from off their own land without a permit, permits covering 4,822 cords of firewood were, however, issued on vacant Provincial lands.

The number of applications for cordwood berths for railway ties were much below the usual, the Custom and Portable Saw-mills being practically the only operators.

There has been considerable road work throughout the Peace River district and a dirt highway is now almost complete from Edmonton to Peace River and throughout the whole district.

TIMBER AND HAY PERMITS, TIMBER SEIZURES

	PROVINCIAL LANDS	SCHOOL LANDS
Timber Permits Issued	381	
Feet Board Measure	1,811,462	
Lineal Feet Building Logs	357,627	
Fence Rails	651,020	
Roof Poles	130,920	
Fence Posts	160,845	
Cords Wood	4,822	
Railway Ties	200	
Telegraph and Telephone Poles		
Lineal Feet Mining Timber		
M. Shingles		
Cords Shingle Bolts		
M. Lath		
Cords Pulpwood		

TIMBER SEIZURES

	PROVINCIAL LANDS	SCHOOL LANDS
Number	1	Nil
Amount of Timber Covered Thereby	320 Lineal Feet Building Lots	....

HAY PERMITS

Number	Nil	Nil
Tons of Hay	Nil	Nil

◇ ◇ ◇

REPORT OF THE GRANDE PRAIRIE LAND AGENCY, (J. J. E. CLARKE)

Business transacted at this office during the period of this report was unquestionably affected by the world-wide depression, and by the fact that homesteading was discontinued on February 14th, 1931. Quite an amount of work, however, was performed which was productive of an appreciable revenue.

So that a general idea may be had of the different kinds and amount of work handled by this office, a statement has been prepared as shown below giving the classification and volume of business in force as at October 1st, 1930:

3	P. and N. G. Leases, Covering	260	acres
7	Coal Leases, Covering	190	acres
1	Quartz-mining Claim, Covering	160	acres
101	Grazing Leases, Covering	36,306.6	acres
191	General Sales, Covering	27,021.12	acres

The number of unpatented homestead entries, applications for inspection outstanding, grazing permits on school lands, and other miscellaneous items are not included in the above statement, to which might be added applications for cancellation proceedings pending, now dealt with at this office.

During this period the following business was handled in addition to collection of revenue and other transactions of a miscellaneous nature:

Homestead Entries	463
Soldier Grant Entries	23
Applications for Grazing Received and Checked	16
Applications for Petroleum and Natural Gas Rights	1
Applications Coal-mining Rights	7
Prospectors' Licenses Issued	2
Grazing Permits Granted	32
Timber Permits Issued	281
Number of Applications for Patent Received	69
Number of Applications for Cancellation Received	105
Number of Entries Cancelled	303

The different classes of revenue received during this period, from which it will be observed that no seed grain was collected, were as follows:

Month	Seed Grain	Lands	Timber & Grazing	Mining Lands	School Lands	Total
Oct., 1930	.....	$2,026.83	$158.22	$38.70	$954.98	$3,178.73
Nov., 1930	.....	2,069.58	282.14	72.50	545.45	2,969.67
Dec., 1930	.....	1,178.10	270.79	91.50	.....	1,540.39
Jan., 1931	.....	665.15	245.18	103.35	74.69	1,088.37
Feb., 1931	.....	1,176.80	154.66	5.00	314.52	1,550.98
Mar., 1931	.....	363.25	228.33	30.00	217.35	938.93
	.....	$7,479.71	$1,339.32	$341.05	$2,106.99	$11,267.07

This revenue is made up of homestead entry fees, payments for improvements, land sales, timber permits and excess dues, grazing rentals, mining rentals, royalties and other revenue of a similar nature.

Owing to the very small price received for grain in this district during the fall and winter of 1930, payments in respect of both general land sales and school land sales were negligible in comparison to the amount owing and until conditions improve I cannot see any hope of reducing the amount outstanding to any great extent.

While the winter of 1930-1931 was the mildest during the past 20 years, yet there were 979 tons of coal mined in this district against 124 tons for the same period in 1929-1930, which goes to show that the demand for local coal is increasing.

The fact that there was not sufficient snow for sleighing during the winter 1930-1931 was a big disappointment to many timber permit holders who desired to have timber manufactured for buildings on their land. In a number of cases they were unable to get the logs out of the bush after having them cut and a large number of permits were returned without being made use of.

The discontinuance of homesteading on February 14th, 1931, made quite a difference in the amount of revenue which would otherwise have been derived from this source as the office was besieged with enquiries from that date onward as to when filing would be resumed.

TIMBER AND HAY PERMITS, TIMBER SEIZURES

	PROVINCIAL LANDS	SCHOOL LANDS
Timber Permits Issued	281	Nil
Feet Board Measure	1,503,459	
Lineal Feet	166,946	
Fence Rails	422,152	
Roof Poles	83,790	
Fence Posts	101,210	
Cords Cordwood	101	
Railway Ties		
Telegraph and Telephone Poles		
Lineal Feet Mining Timber		
M. Shingles		
Cords Shingle Bolts		
M. Lath		
Cords Pulpwood		

TIMBER SEIZURES

Number	PROVINCIAL LANDS	SCHOOL LANDS
	Nil	Nil

HAY PERMITS

Number of Permits	Nil	Nil
Tons of Hay	Nil	Nil

PETROLEUM AND NATURAL GAS

REPORT OF THE DIRECTOR OF PETROLEUM AND NATURAL GAS, W. CALDER

Immediately it was known that an agreement had been completed for the transfer of Alberta's natural resources from the Dominion to the Provincial Government, a marked lull in all oil and gas prospecting and development was noticed. This slowing down was however coincident with the commencement of the world depression and it is therefore unreasonable to stress the falling off in operations as entirely due to this transfer. Amongst many operators there undoubtedly prevailed a feeling that Provincial supervision would be more rigorous than that which had hitherto prevailed. This feeling may have been furthered when it was appreciated that the Province would have to prepare entirely new regulations to administer all of the transferred public domain.

As it was impossible to have them immediately prepared at the date of transfer and also to set up without delay complete organizations for their administration, certain departments were continued under Dominion control after the first of October, amongst others that of the supervision of oil and gas operations, the latter being entirely centred at Calgary.

Early in February final arrangements were made so that the larger portion of the Dominion oil and gas supervisory staff entered the Provincial service. Several weeks, however, elapsed before the new organization was completely in order. Towards the end of March district offices were opened at Calgary and Lethbridge and office space and equipment were set up at Edmonton for the central bureau of the Division. These changes were made so that operations in all parts of the Province could be more efficiently controlled and operators given quicker assistance than had been formerly possible when Dominion supervision was entirely worked from Calgary.

From the foregoing it will be appreciated that supervision of petroleum and natural gas in the Province has only been under direct Provincial control for a very short time—less than two months. During this period, however, all phases of this important branch of the resources—that of the Turner Valley waste gas—has received special consideration by conferences and by the preparing of legislation all of which will asist in controlling, to within reasonable limits if not entirely, this colossal and unjustifiable waste.

For the period covered by this report the gross production of oil has been as per the schedule attached. For comparison similar data for the fiscal year 1930 are also included.

Wet gas is found in the limestone formation underlying the Turner Valley at depths ranging from 3500 to 6000 feet from the surface. When first discovered the gas contained a considerable quantity of naphtha. Since that date the wells have increased to such an extent that with exhausting the source the naphtha content has decreased considerably. This is particularly noticeable in the majority of the older wells where, despite the fact that the gas volume shows little or no diminution, the naphtha content has dropped to such a small percentage that many of these wells from which gas is ab-

stracted are no longer economic producers. The continuation of their production is a practice to be deplored as it represents the wasteful burning of gas which, if kept in the ground and restricted in flow to a reduced number of wells, would mean a greater recovery of naphtha from a smaller quantity of gas than is possible by the present methods employed.

Under Dominion supervision of the natural resources it was questionable as to whether general conservation could have been enforced. A restriction effective on Crown Lands only would have proved farcical and provided definite argument that favouritism was being practised. With the transfer to Provincial authority such criticism can no longer be made and regulations are now in preparation which, when promulgated, will permit of all operations coming under any conservation measures that may be necessary.

With such powers available proper conservation regulations need no longer be delayed. Their application will undoubtedly cause a serious drop in the gross production of oil but the benefit will not only lengthen productive life of the Turner Valley area by conserving the gas until a market has been found which is greater than the one at present available but will make it possible for the investing public to receive a return on their investments, a consideration which has been impossible under the wasteful methods in force up to the present time.

Further there is the probability that operators when forcibly deterred from producing wet gas will concentrate their operations in the development of crude oil—a field of operation which has been sadly ignored on account of major efforts having been centred on the deep and expensive development to reach wet gas in the Turner Valley.

For classification all oils ranging in gravity between thirty and sixty degrees Beaume (equal to .739 specific gravity) are known as light crude. So far commercial quantities of this grade of oil have been developed from horizons above the limestone in Turner Valley and also at Red Coulee, an area close to Coutts in the southern part of the Province. Similar oils have also been proven at Moose Mountain and Pekisko but active development at both these places has not as yet started.

Light crude found in the Turner Valley is of very high quality and as its constituent parts are principally gasolene, kerosene and lubricating oils, all of which are in great local demand, it is regrettable that operators have not given this oil greater attention.

So far developments at Red Coulee have not been very extensive but practically all of the wells drilled there to date have proven the existence of oil. Here again operators have unfortunately not been satisfied with the small production which their wells showed and in their endeavours to increase the quantity several have drilled deeper and struck water which has flooded and driven away the oil previously present. The consideration that the oil, although only present in small quantities, is ample to give a good return on capital invested, makes it regrettable that operators cannot be satisfied to build up this and other fields from a small beginning.

Heavy crude oils ranging in gravity up to thirty degrees Beaume (.876 sp.. gr.) have been proven at Wainwright, Ribstone, Oyen, Skiff and Keho. In the last three areas no serious attempt has as yet been

made towards production. At Wainwright intermittent production has been in progress since oil was first discovered.

So far the output per individual well has not been very large but with experienced personnel and centralized operations the Wainwright area can be made to produce a considerable quantity of oil with satisfactory returns to investors. The centralizing of operations at Ribstone has resulted in four producing wells all within a very limited area. Endeavours are now in progress to extend this area of production and if they are successful this district will also produce large quantities of oil.

For six months to the end of March 31st, 1931, a total of 76,229 feet was drilled in all deep wells. Several deep tests were abandoned during this period but as most of them were located in areas where the geological conditions are very complex, it is probable that such areas may again at a later date be tested and prove the existence of remunerative oil.

In the search for potential oil bearing structure, various operators have drilled at different points on the plains to a total of 24,742 feet. This footage was all made in shallow wells. In every case the drilling was only deep enough to reach some known geological horizon the persistence of which extends over a wide area. Such exploration stands as a fairly reliable guide respecting the geological conditions that may be expected at various depths.

The repressuring of the depleted Bow Island gas field with gas from Turner Valley is being continued at the rate of about five million cubic feet per day. The total quantity forced into the ground from the commencement of repressuring to end of March amounts to 1,118,391,000 cubic feet.

Up to the present oil and gas operators in Alberta have been obliged to indent for their skilled labour from the United States, which has resulted in the higher paid branches of this new industry in the Province being closed to local men owing to their inability to get the training which would fit them for posts of responsibility. These labour handicaps combined with the excessive costs of well drilling in Alberta as compared with other countries do not assist in furthering the industry which if it is to grow must be helped in every way possible, provided always that such help is in no way detrimental or a charge on the public. A suggested improvement towards the general benefit of home employment, from the standpoint of assisting local workers and at the same time giving them an opportunity to acquire technical knowledge with a view to becoming experienced drillers, would be the engagement at all wells of at least two learners or apprentices who should be given every opportunity of becoming fully conversant with all details of deep well drilling.

By the introduction of such changes operators would be considerably assisted in financing their operations and at the same time the process of training and building up a local body of competent workers should obviate entirely the necessity of indenting for skilled labour from outside the Dominion.

As compared with previous years weather conditions, during the period of the foregoing report, have been extraordinarily mild and most favourable to continuous work. It is regrettable therefore that causes have arisen to temporarily retard the development.

ALBERTA OIL PRODUCTION FOR YEAR ENDED MARCH 31st, 1931.

Quantities in Barrels

Period	Turner Valley Naphtha 60° or Over	Turner Valley Light Crude 30° to 60°	Red Coulee Light Crude 30° to 60°	Wainwright Heavy Crude 30° or Under	Ribstone Heavy Crude 30° or Under	Skiff Heavy Crude 30° or Under	TOTAL
March 31, 1930, to Oct. 1, 1930.....	603,425	23,391	28,628	4,496	1,532	3,731	665,203
Oct. 1, 1930, to March 31, 1931.....	893,032	15,213	36,951	2,337	1,466	.....	948,999
TOTAL	1,496,457	38,604	65,579	6,833	2,998	3,731	1,614,202

ALBERTA OIL PRODUCTION FOR YEAR ENDED MARCH 31st, 1930.

Quantities in Barrels

TOTAL	1,038,460	70,760	7,294	14,229	2,839	1,432	1,135,014

INCREASES

Turner Valley Naphtha.....	457,997
Red Coulee Light Crude.....	58,285
Ribstone Heavy Crude.....	159
Skiff Heavy Crude.....	2,299
TOTAL	518,740

DECREASES

Turner Valley Light Crude.....	32,156
Wainwright Heavy Crude.....	7,396
TOTAL	39,552

Naphtha is the product recovered by simple separation from wet gas produced in the Turner Valley area. For classification purposes this includes all hydrocarbon liquids extracted from gas and having a gravity greater than sixty degrees Beaume or .739 specific gravity.

FORESTRY

REPORT OF THE DIRECTOR OF FORESTRY (T. F. BLEFGEN)

On October 1st, 1930, the Forest Service of the Department of Lands and Mines, Government of the Province of Alberta, became responsible for the major forestry activities within the Province of Alberta. In line with this change, practically all the officials of the Service previously responsible for this work, under the Department of the Interior, were taken over by the Alberta Forest Service, the exceptions being principally those technical officers employed by the Forest Service of the Department of the Interior engaged in research work—research and investigative work being on the programme of the Dominion Service. The retention of these men by the Dominion Service depleted the administrative staff to some extent, in view of the fact that these men had all, from time to time, taken an active part in administrative work.

When responsibility for forestry activities was transferred from the Dominion to the Provincial Government, the Dominion Forest Service was responsible for the protection and administration of 19,433.69 square miles of established forest reserves. In addition to this area, the Forest Service was responsible for forest protection in what is known as the Edmonton Fire Ranging District, and in that district was also responsible for enforcement of The Prairie Fires Act—the area of this district being 142.802 square miles. After the transfer of forest resources to the Province of Alberta, the Forest Service of this Province undertook the responsibility previously dealt with by the Dominion Forest Service.

At the outset, one of the principal problems to be dealt with by the Alberta Forest Service was that of co-ordinating and reconciling the requirements of relating branches and departments of the Government of the Province of Alberta, with the requirements of the Forest Service, and vice versa. The co-operation received by the new Service from the old established branches and departments of the Provincial Government left nothing to be desired.

There was also the problem of re-arranging the personnel, due partly to depletion of staff previously mentioned, and partly to retirements which automatically took place upon the curtailment of work to be dealt with by the Forest Service of the Department of the Interior which provided a further depletion of staff. The principal reductions in staff affected the various forest offices and Head Office; the field staff proper—that is, rangers, assistant rangers, etc., remained at the same strength as under Dominion control.

Almost immediately after the transfer of responsibility in the matter of administration and protection, the Forest Service was asked to provide ways and means for the employment of single unemployed in the City of Calgary. With a view to providing useful work for these men, and at the same time to so locate the work that

men, equipment and supplies could be dealt with, with a minimum of difficulty, work was laid out in those portions of the Bow River Forest closest to the City of Calgary. Additional reasons for centering the work in the districts adjacent, within the Bow River Forest, were the extreme importance of the Elbow River Drainage Basin to the City of Calgary, and the importance of the Kananaskis and Ghost River Drainage Basins to power and irrigation projects dependent on the waters of the Bow River; also the importance of the Jumping Pound Basin as a catch basin of an important tributary of the Bow River.

The work laid out as a program for the various camps included an improvement of lines of communication within the districts concerned, with a view to bettering the protective and administrative efforts, the establishment of fire lines along roads and trails with a view to bettering those roads and trails and the establishment of fire lines along the east boundary of the forest, having in view the recutting of the forest boundary, and at the same time the provision of an agency for checking fires which might endanger settlement adjacent to the forest, or as a check against fires running from adjacent settlement into the forest. In addition to this the establishment of fire lines proper was made effective in important areas, such lines having no other purpose in view but the control of fires. The improvements of roads to allow more speedy and safe travel, the principal work being the widening of sidehill and through cuts, was also given attention together with the rebuilding of bridges and culverts, the installation of new bridges and culverts and the disposal of slash and windfall, the slash resulting from ill-regulated logging operations and the windfall resulting from wind-thrown timber on burnt over areas. In the latter areas preparations were made to broadcast seed in certain portions that appeared to be entirely barren of tree growth, due to recurring fires. The construction of fireguards around one important slash area was made with a view to providing a means of fire control should it originate in this slash. Seed collection for the broadcast seeding referred to constituted a portion of the work, the pine cones collected to be shipped to the seed extraction plant at Rocky Mountain House. Certain limited areas were thinned with a view to improving important stands of young growth (down-timber and underbrush to be removed), and the piling and burning of all slash and debris resulting from thinning was carried out which cleared fire lines, road, trail, and telephone line improvement work. Several bridges of round timber were constructed, some being replacements and others new projects to eliminate fords. This work took place principally on the South Sheep Road and the Red Deer Road. In the Elbow District a steel traffic bridge was constructed across the Elbow River near the Elbow Ranger Station. This bridge replaced the round timber bridge of 140′ span. On this project one crew prepared the approaches, removed the old structure and prepared new abutments and pier. It is understood that the work of this crew resulted in a saving of approximately $2,000.00 in the construction of this bridge. The bridge is essential to fire protection in this important district and in addition allows traffic to proceed to the Elbow Ranger Station and points up river where oil development operations are in progress and popular camp grounds are located.

All equipment and supplies required were arranged for including tents, bedding, mess equipment, tools, food supply and commissary.

Camps were located and set up as quickly as possible, the operation commencing in the Elbow District. As the work increased, transport service was arranged and organized and arrangements were completed early in December for a first class supply service which would undertake the buying of all food supplies, and check up on the use of such food at the camps.

The office of the Bow River Forest, Calgary, was directly responsible for the administration and supervision of this work, field supervision being a responsibility of the ranger in the district concerned.

The original quota of men had just been placed in camp when the Service was advised to enlarge operations. At this time, camps were operating in the Elbow, Jumping Pound and Aura Districts of the Bow River Forest, the latter district including all the Ghost River Drainage in that forest. Enlargement of the operations made it necessary to open up work in two other districts—the Bighorn District, which includes the drainage of North and South Sheep Rivers, and the Red Deer District. Camps were installed on the South Sheep River and the Red Deer River, and provision made to carry on work similar to the camps previously established.

In all, there were 18 camps established in the Bow River Forest, with a housing and feeding capacity of 792 men, and an additional 105 men made up of foremen, straw bosses, timekeepers, cooks, and teamsters. Eleven hundred and sixty (1160) men on the relief programme passed through the camps. It will be noted, therefore, that the labour turnover was not abnormally high under the circumstances.

Without exception, the class of work completed by the various crews was highly satisfactory, and resulted in the improvement of an important section of the Bow River Forest division of the Rocky Mountains Forest Reserve.

Weather conditions which obtained last winter simplified the operation to a great extent. Had the winter been a normal one, the amount of work completed would have been very considerably lower and the finished work would not have been nearly so satisfactory.

The effect of undertaking this operation was that the Bow River Office at Calgary, and Head Office in Edmonton, were forced to give a great deal of attention to the operation, and routine forestry work suffered to some extent as a consequence.

It might be of interest to point out that the closest camp to Calgary was 32 miles from that city, and the furthest camp was approximately 120 miles.

A statement attached to this report summarizes the work accomplished by the various camps, and indicates the major classes of work. Other work was undertaken, but was of small consequence. See statement No. 1.

The fire season, which normally would have been considered practically over on October 1st, continued in certain localities throughout the winter, with the result that it became necessary to retain fire protective services for a much longer period than usual. Winter conditions in the foothills were of such a nature that in many instances fire would run readily through the dead vegetation and crown in the timber, the result being that fires were fought at intervals throughout the winter. Under these circumstances, it will be understood that the disposal of slash and other debris by burning, under the Unemployment Relief programme, had to be dealt with in a very careful manner. Fires occurring during a season such as was experienced last winter are sometimes rather difficult to control, due to the fact that the water is not available and trenching in frozen ground is extremely difficult. See Statements Nos. 2 to 11 inclusive.

Forage conditions throughout the Province were very satisfactory, and winter range was in good condition. The result was that there was little increase in the winter grazing business on the various established forests. Conditions for grazing within these forests were very favourable, and in localities where the privilege of obtaining winter grazing was desired, it was granted if not detrimental to the usual summer grazing use.

Grazing within forest reserves has two major objectives: The maximum use of range without over-grazing with a view to reduction of fire hazard during the summer season, and the placing of additional areas for grazing at the disposal of ranchers and farmers. See Statement No. 12.

Due to conditions obtaining in the lumber market, very little lumber was manufactured. Operators, in many cases, cut only sufficient logs to round out their stock in dimensions in which they were short, and also to some extent endeavoured to retain their key men by providing a small amount of work.

The timber permit business during the winter was slightly below average. See Statements Nos. 13 and 14.

As previously indicated in that section of the report dealing with work dealt with under the Unemployment Relief programme, certain sections of land which appeared to be barren of tree growth were prepared for broadcast seeding. When the collection and extraction of seed were arranged for and accomplished, that area of land in the Elbow Valley so prepared, was sown broadcast with lodgepole pine seed. See Statement No. 1.

Some time previous to the transfer of resources from the Dominion to the Province of Alberta, a survey of the Banff and Jasper National Parks in Alberta was undertaken with a view to eliminating from the National Parks, those areas

1. Which were, or would be likely to become areas required for industrial development;
2. Unsuitable for park purposes, or

3. For the purpose of establishing a more definite and more satisfactory boundary than had previously existed.

This elimination of areas from the National Parks was followed by transferring such areas to the control of the Forest Service, and adding these areas to the abutting forests—these being: The Brazeau Forest, the Bow River Forest, the Clearwater Forest, and the Athabasca Forest—comprising a total area of 1,364.46 square miles; the principal addition being to the Bow River Forest by the addition of all the Kananaskis Drainage Basin, part of the Spray Drainage Basin, additional areas in the Bow Valley, all of the Ghost River Drainage Basin, and areas in the Panther and Red Deer Valleys. The addition to the Bow River Forest, was followed by the necessity for forest and game protection and administration in the areas concerned. A considerable area was added to the Athabasca Forest in the Athabasca River Valley in the vicinity of Brule, and to the Brazeau Forest northwest of Luscar.

Areas eliminated from established forests and brought under Parks Branch Administration of the Department of the Interior totalled 821.5 square miles of scenic mountainous territory. This elimination affected the Clearwater Forest principally.

Statement No. 1.

SUMMARY OF WORK DONE BY UNEMPLOYMENT RELIEF CREWS

BOW RIVER FOREST, 1930—1931

ROAD WORK:

Bridges:	Stumping (22′ wide)	Graveling:	Corduroy: (average width 18′)	Filling:	Culverts:	Cribbing: (Log)	Rock Work:	Guard Rails:	Widening Side-hill Grades and Through Cuts:
1 steel 140′ 36 wooden Total Length 1279′	4592 yds.	752 lin. ft.	2099 lin. ft.	1000 cu. yds. (approx.)	119	130 yds.	5500 cu. yds. (approx.)	1200 lin. ft.	75,537 lin. ft.

FIRE LINES COMBINED WITH ROADS OR TRAILS:

Trails as Fireguards:	Roads as Fireguards:	Right-of-way widened through Brule:
40—60′ wide 45.75 miles	60—66′ wide 76.05 miles	60′ width..... 3 miles 40′ width..... 2.5 miles Total..... 5.5 miles

TELEPHONE LINES MAINTENANCE:

Resetting Poles:	Rebuilding Line:
14.66 miles	New poles used 14 miles Creosoted in Forest Service Plant by crew.

MISCELLANEOUS:

Corrals:	Root Cellars: (For storage of crew food supplies)	Fencing :(pole)	Clearing & Burning:	Thinning:	Seed Collection:	Fire Lines Proper: (including recutting forest boundary)
2 sets	5 ton 5	57 rods	(Brule and logging slash) 815 acres	(Young growth and pole size stands—clearing underbrush, burning debris) 820 acres	118 sacks lodgepole pine	30—40′ wide 53.20 miles

Statement No. 2.

SUMMARY OF FIRE LOSSES WITHIN AND OUTSIDE PROVINCIAL FORESTS

PERIOD OCTOBER 1, 1930, to MARCH 31, 1931

Cause	No.	Per Cent.	LOSS						
			Cost of Suppression	Area (in Acres)	Salvable Timber F.B.M.	Salvable Timber Cords	Unsalvable Timber F.B.M.	Unsalvable Timber Cords	Total Loss
Campers	15	26.78	$477.05	6,129.565	135 M.		4.75 M.	10	$71,257.85
Smokers	7	12.50	463.70	2,428.25			1. M.	119	5,370.69
Settlers	4	7.14	209.20	2,210.	20 M.				312.00
Incendiary	1	1.79	82.25	12.					
Railways	27	48.21	6.11	407.2					82.00
Industrial Operations	1	1.79							3,000.00
Unclassified	1	1.79		.1					
TOTAL	56		$1,238.31	11,187.115	155 M.		5.75 M.	129	$80,022.54

Statement No. 3.

SUMMARY OF INSIDE FOREST FIRE LOSSES

PERIOD OCTOBER 1, 1930, to MARCH 31, 1931

Cause	No.	Per Cent.	LOSS						
			Cost of Suppression	Area (in Acres)	Salvable Timber F.B.M.	Salvable Timber Cords	Unsalvable Timber F.B.M.	Unsalvable Timber Cords	Total Loss
Campers	2	22.22	$29.15	.625			1 M.	10	$3.00
Smokers	3	33.34	434.16	28.			1 M.	119	68.69
Settlers									
Incendiary	1	11.11	82.25	12.					
Railways	2	22.22	6.11	1.2					
Industrial Operations									
Unclassified	1	11.11		.1					
TOTAL	9		$551.67	41.925			2 M.	129	$71.69

Statement No. 4.

SUMMARY OF OUTSIDE FIRE LOSSES

PERIOD OCTOBER 1, 1930, to MARCH 31, 1931

Cause	No.	Per Cent.	LOSS						
			Cost of Suppression	Area (in Acres)	Salvable Timber F.B.M.	Salvable Timber Cords	Unsalvable Timber F.B.M.	Unsalvable Timber Cords	Total Loss
Campers	13	27.70	$447.90	6,128.94	135 M.		3.75 M.		$71.254.85
Smokers	4	8.51	29.54	2,400.25					5,302.00
Settlers	4	8.51	209.20	2,210.	20 M.				312.00
Locomotives	10	21.26		360.					25.00
Right-of-way Burning	15	31.89		46.					57.00
Industrial Operations	1	2.13							3,000.00
TOTAL	47		$686.64	11,145.19	155 M.		3.75 M.		$79,950.85

Statement No. 5.

FIRES WITHIN ALBERTA FOREST RESERVES

DISTRIBUTION BY MONTHS

Month	BRAZEAU			CLEARWATER			BOW RIVER			TOTAL		
	No.	Per Cent.	Loss	No.	Per Cent.	Loss	No.	Per Cent.	Loss	No.	Per Cent.	Loss
October, 1930												
November												
December	3	50.		1	100.	$3.00				4	44.44	$3.00
January, 1931							1	50.	$1.75	1	11.11	1.75
February	2	33.33					1	50.		3	33.33	
March	1	16.67	$66.94							1	11.11	66.94
TOTAL	6	100.00	$66.94	1	100.00	$3.00	2	100.00	$1.75	9	100.00	$71.69

Statement No. 6.

SUMMARY OF FOREST FIRE LOSSES

BOW RIVER FOREST RESERVE—October 1, 1930, to March 31, 1931

Cause	No.	Per Cent.	Cost of Suppression	Area (in Acres)	LOSS				Total Loss
					Salvable Timber F.B.M.	Salvable Timber Cords	Unsalvable Timber F.B.M.	Unsalvable Timber Cords	
Smokers	1	50.	$128.77	10				10	$1.75
Incendiary	1	50.	82.25	12					
TOTAL	2		$211.02	22				10	$1.75

Statement No. 7.

SUMMARY OF FOREST FIRE LOSSES

BRAZEAU FOREST RESERVE—October 1, 1930, to March 31, 1931

Cause	No.	Per Cent.	Cost of Suppression	Area (in Acres)	LOSS				Total Loss
					Salvable Timber F.B.M.	Salvable Timber Cords	Unsalvable Timber F.B.M.	Unsalvable Timber Cords	
Campers	1	16.67	$3.70	.125					
Smokers	2	33.33	305.39	18.				119	$66.94
Railways	2	33.33	6.11	1.2					
Unclassified	1	16.67		.1					
TOTAL	6		$315.20	19.425				119	$66.94

Statement No. 8.

SUMMARY OF FOREST FIRE LOSSES

CLEARWATER FOREST RESERVE—October 1, 1930, to March 31, 1931

Cause	No.	Per Cent.	Cost of Suppression	LOSS					Total Loss
				Area (in Acres)	Salvable Timber F.B.M.	Salvable Timber Cords	Unsalvable Timber F.B.M.	Unsalvable Timber Cords	
Campers	1	100.	$25.46	.5			1 M.		$3.00
TOTAL	1		$25.46	.5			1 M.		$3.00

Statement No. 8-A.

FIRES OUTSIDE CLEARWATER FOREST

(Districts Nos. 1 and 2)

Cause	No.	Per Cent.	LOSS						
			Cost of Suppression	Area (in Acres)	Salvable Timber F.B.M.	Salvable Timber Cords	Unsalvable Timber F.B.M.	Unsalvable Timber Cords	Total Loss
Campers	1	16.67	$26.77	5,200.					$71,112.35
Smokers	1	16.67	16.16	.25					2.00
Settlers	2	33.33	209.20	2,200.	20 M.				290.00
Railways	1	16.67		13.					
Industrial Operations	1	16.67							3,000.00
TOTAL	6		$252.13	7,413.25	20 M.				$74,404.35

Statement No. 9.

SUMMARY OF FOREST FIRE LOSSES

EDMONTON FIRE RANGING DISTRICT—October 1, 1930, to March 31, 1931.

Cause	No.	Per Cent.	LOSS. Cost of Suppression	Area (in Acres)	Salvable Timber F.B.M.	Salvable Timber Cords	Unsalvable Timber F.B.M.	Unsalvable Timber Cords	Total Loss
Campers	11	84.64	$421.13	928.44	135 M.		3.75 M.		$142.50
Smokers	2	15.36	13.38	1,520.00					5,150.00
TOTAL	13		$434.51	2.448.44	135 M.		3.75 M.		$5,292.50

Statement No. 10.

SUMMARY OF FIRE LOSSES

CANADIAN NATIONAL RAILWAYS—October 1, 1930, to March 31, 1931

Cause	No.	Per Cent.	Cost of Suppression	LOSS					Total Loss
				Area (in Acres)	Salvable Timber F.B.M.	Salvable Timber Cords	Unsalvable Timber F.B.M.	Unsalvable Timber Cords	
Smokers	1	4.55		880					$150.00
Locomotives	5	22.72		244					25.00
Settlers	1	4.55							10.00
Right-of-way Burning	15	68.18		46					57.00
TOTAL	22			1,170					$242.00

Statement No. 11.

SUMMARY OF FIRE LOSSES

NORTHERN ALBERTA RAILWAYS—October 1, 1930, to March 31, 1931

Cause	No.	Per Cent.	LOSS						
			Cost of Suppression	Area (in Acres)	Salvable Timber F.B.M.	Salvable Timber Cords	Unsalvable Timber F.B.M.	Unsalvable Timber Cords	Total Loss
Campers	1	16.67		.5					
Locomotives	4	66.67		103.					
Settlers	1	16.66		10.					$12.00
TOTAL	6			113.5					$12.00

Statement No. 12.

ANALYSIS OF REVENUE FROM GRAZING

FISCAL YEAR OCTOBER 1, 1930, to MARCH 31, 1931

Provincial Forest	Number of Permits	Revenue	Number of Horses	Number of Cattle	Number of Mules
Cypress Hills	4	$51.80	63	35	
Crow's Nest	26	2,141.79	600	4,317	
Bow River	15	742.96	506	992	
Clearwater	9	101.40	87		
Brazeau	31	107.90	105	2	1
Athabaska	7	171.90	239		
TOTAL	92	$3,717.75	1,600	5,346	1

Statement No. 13.

TIMBER CUT AND REVENUE DERIVED FROM TIMBER SALES

PERIOD OCTOBER 1, 1930, to MARCH 31, 1931

Provincial Forest	Saw-logs Dry (F.B.M.)	Saw-logs Green (F.B.M.)	Mine Props Dry (Lin. Ft.)	Mine Props Green (Lin. Ft.)	Mining Timber (Lin. Ft.)	Lagging (Lin. Ft.)	Fir Tops Dry (Pcs.)	Fir Tops Green (Pcs.)	Ties	Revenue (Paid)
Brazeau		57,054		248,906	70,504.	19,230				$369.98
Clearwater					1,159,913.5	302,398				1,949.46
Crow's Nest	43,392	1,323,129	19,490	128,042			82	257		1,698.80
Lesser Slave		1,425,953							19,546 Pcs. 645,018 F.B.M.	4,989.39
TOTAL	43,392	2,806,136	19,490	376,948	1,230,417.5	321,628	82	257	19,546 Pcs. 645,018 F.B.M.	$9,007.63

Statement No. 14

ANALYSIS OF WOOD SALES

ALBERTA FOREST SERVICE

FISCAL YEAR OCTOBER 1, 1930, to MARCH 31, 1931

Fuel Wood (cords)	1,233
Fence-posts, Rails, and Piling (pcs)	32,808
Fence-posts, Rails, and Piling (lin. ft.)	40
Railway Ties (pcs.)	
Saw Timber (F.B.M.)	539,000
Mining Timber (lin. ft.)	670,070
Building Logs (pcs.)	127
Building Logs (lin. ft.)	10,594
Miscellaneous (lin. ft.)	9,333
Miscellaneous (cords)	2
Miscellaneous (pcs.)	2,654

Statement No. 15.

STATEMENT OF REVENUE—ALBERTA FOREST SERVICE

FISCAL YEAR OCTOBER 1, 1930, to MARCH 31, 1931

Provincial Forest	No. of Timber Permits	Revenue from Timber Permits Sales, etc.	No. of Grazing Permits	Revenue from Grazing Permits	OTHER SOURCES OF REVENUE: Hay Permits and Seizures	Surface Rentals	Miscellaneous	Total Revenue
Athabasca	1	$1.00	7	$171.90			$18.75	$191.65
Bow River	41	153.70	15	842.96			80.75	1,077.41
Brazeau	13	717.23	31	107.70		$848.72	10.25	1,683.90
Clearwater	10	3,599.16	10	106.20		709.92	31.53	4,446.81
Crow's Nest	165	5,165.05	27	2,142.23		73.20	34.00	7,414.48
Cypress Hills	110	901.42	3	45.80			35.00	982.22
Lesser Slave		5,089.39			$5.00		7.25	5,101.64
GROSS TOTAL	347	15,626.95	93	3,416.79	5.00	1,631.84	217.53	20,898.11
Transfers from Dominion Gov.		9,065.05						9,065.05
Interest							1.45	1.45
		24,692.00		3,416.79	5.00	1,631.84	218.98	29,964.61
Less Refunds		116.00						116.00
NET TOTAL	347	24,576.00	93	$3,416.79	$5.00	$1,631.84	$218.98	$29,848.61

Statement No. 16.

IMPROVEMENTS—STATEMENT OF MAN-DAYS WORKED

PERIOD OCTOBER 1, 1930, to MARCH 31, 1931

Forest	Buildings		Trails		Roads		Fences		Telephone Lines		Corrals		Grounds		Water Supply		Fireguards		Ferries		Pastures		Seed Extraction
	C.	M.	C.	M.	C.	M.	C.	M.	C.	M.	C.	M.	C.	M.	C.	M.	C.	M.		M.		M.	
Cypress Hills		1		1																			
Crow's Nest	65	87	2	14		30		28		124	6	1		2									
Bow River		17		45½		48½		26½		94					5	6							
Clearwater		23		42		2½	17½	6		23		1								12		13	8
Brazeau	28	46½		16½				4		45		½		8½		4						2½	
Athabasca	30	4		51			11	16		10				1				43				4	
Lesser Slave	5	31		88				30		27						1						1	
TOTAL	128	209½	2	258		81	28½	110½		323	6	2½		11½	5	11	43		12			20½	8

Statement No. 17.

SUMMARY OF IMPROVEMENTS

PERIOD OCTOBER 1, 1930, to MARCH 31, 1931

Forest	Cabins	Ranger Station Houses	Stables	Caches	Out-buildings	Fencing (Length in Rods)	Corrals	Fireguards (Length in Rods)	Entrance Gates
Cypress Hills									
Crow's Nest		1*	1*		2		1		
Bow River			1			36			
Clearwater									2
Brazeau	1								
Athabasca				1		835		114.4	
Lesser Slave	1*		1*						
TOTAL	2	1	3	1	2	871	1	114.4	2

*Started before October 1st, 1930.

FISHERIES

REPORT OF THE DIRECTOR OF FISHERIES (R. T. RODD)

On the event of the transfer of the resources to the Provincial Government, the permanent staff of this Branch was taken on in a temporary capacity to carry on the work of the Fisheries, and those of the temporary staff who were required were also retained.

As an Act was provided by this Government adopting the Federal Act and Regulations for the present administration of the Fisheries, there were very few immediate changes necessary to carry on the administration.

As the summer commercial fishing season ended on the last day of September, and as the angling season for Trout, Grayling and Rocky Mountain Whitefish closed on the 15th day of October, and as practically no angling is carried on after the end of September for these species, all statistics for summer fishing were included in the report to the Federal Government for the period up to September 30th.

COMMERCIAL FISHING

Decreases were shown, in the commercial catch, in nearly every class of fish taken during the season—from December 1st to the end of the commercial winter fishing season, 1931. This was due chiefly to marketing conditions—the fishermen and producers or buyers not being able to dispose of large quantities of fish on the Eastern markets.

Lake Wabamun showed a decrease during the month of December, but the winter limitation of 60,000 pounds was reached during the season.

Very little fishing was carried on in Pigeon Lake during the month of December, due to the fact that there were no buyers whatsoever at the lake, and it was found necessary to restrict the fishing to two and one-half days, from December 16th, to prevent waste or loss of fish. The fishermen were enabled to peddle what were taken during this short period. The roads being in good condition, the fish were distributed over a large area of the Province. Fishing was again resumed on this lake on the 1st of January, and the balance of the catch was disposed of to good advantage, the fishermen obtaining an exceptionally good price for their production, considering the abnormal marketing conditions.

The total export from the Province during the month of December was small as compared with former years, but owing to the unusual weather conditions prevailing, and good roads, greater quantities of fish were peddled throughout the Province than heretofore.

As the winter production on Lac la Biche is chiefly Tullibee for which there is a very poor market normally, and which was exceptionally poor this season, the catch was considerably curtailed.

Very little fishing was carried on in Cold Lake during December. Owing to mild weather and a late freeze-up, the fishermen were unable to operate until close to the end of December.

The limitation of production on both Cold and Primrose Lakes, however, was reached during the month of January, showing that the fishing in these lakes is in exceptionally good condition. It might be well to mention that, as these lakes are intersected by the interprovincial boundary line, uniform Regulations were necessary, and, in order to prevent confusion in the enforcement of the Regulations on these lakes, an agreement was reached between the Governments of the Provinces of Saskatchewan and Alberta, whereby the direction of the Fisheries was left entirely to this Government.

on these lakes

On Lesser Slave Lake the winter catch is usually small, the fishermen of that district going farther back to lakes which cannot be fished during the summer season owing to lack of trails, or the impossibility of making suitable roads for summer transportation from the lakes to the railway, chiefly through muskeg or swamp country. On this lake, however, fishing was permitted for a short period during the month of March, when a small quantity of fish was taken, and for which an exceptionally good price was obtained.

The production on Calling Lake was far below normal, apparently due to depletion, and it will be found necessary to restrict the commercial fishing in this lake for a period of years to permit a natural increase to bring the lake back to a normal condition.

The production from these lakes mentioned was sold chiefly in a green or unfrozen state, for which a better price is always obtained than for the fish produced and sold in the frozen state. This season the market for frozen fish was exceptionally poor, it being very difficult to dispose of any frozen fish on the Eastern markets . For this reason the fishermen produced very little fish from lakes at any great distance from railway transportation, where it was impossible to bring the fish out to the railway green or unfrozen.

Very little fishing was, therefore, carried on in a large number of small lakes lying north of Lesser Slave Lake, where frozen fish have formerly been produced for a number of years. No fishing was carried on in the Wabasca Lakes or Trout and Graham Lakes. The limitation of 60,000 pounds, however, was taken on what are known as the Big and Little Whitefish Lakes, lying fifty miles North of Grouard. The production from Winnifred Lake, East of Conklin, near the Alberta and Waterways Railway, was also small. It was [illegible] possible to produce unfrozen fish from this lake, but very few fishermen operated on this lake this season, due to the uncertainty of the markets and the greater expense necessary to operate. In the group of lakes East of Lac la Biche known as the Pinehurst Group, fishing was considerably curtailed, as many of these lakes cannot be reached except by sleigh, in the winter seasons, and as there was no snow in that district for the greater part of the season, the fish could not be brought to the railway.

The total amount of fish taken on commercial fishing during the season, the value to the fishermen and the value as marketed are shown in the statement herewith attached.

EQUIPMENT

Owing to the economic situation, less new equipment such as nets, etc., was purchased during the season, the fishermen endeavouring to carry on the work with the old nets used during the summer season.

The value of equipment used in commercial fishing was $75,808.00.

MARKETS

The market for Trout was poor during the entire season, and the prices obtained for this class of fish were much lower than those for Whitefish. The fishermen at Cold Lake found some difficulty in disposing of their catch of Trout, and made every effort to avoid taking them. The market for this fish was chiefly local, as very little of it could be shipped to the Eastern markets at a profit.

This was chiefly due to the large production of Trout taken from the Great Lakes, and which supplied the market.

It will be noticed that the prices generally were much lower than in former years, the price of Whitefish bringing an average of from two to three cents per pound less, and the price of trout from four to five cents less than former years.

TRANSPORTATION

Facilities for transportation were good, and no difficulty prevailed excepting for lack of snow, which prevented the fishing of distant and inaccessible lakes, where only sleighs can be used. Therefore, most of the fish was marketed fresh this season. The use of trucks in the transportation of fish from the lakes is increasing yearly.

LICENSES

The number of licenses shows little increase, except in the Domestic. A much fewer number of fishermen took out Commercial Licenses, and a decrease is also shown in the number of Fishermen's Licenses issued. The total number of licenses issued aggregated 915.

As no angling is permitted for Trout during the winter season, and as Permits are not required by residents for angling for the coarser varieties of fish, none were sold during the winter period.

DOMESTIC FISHING

There was an increase in the sale of Domestic Licenses issued during the season, and a great increase in the domestic fishing carried on under these licenses. In addition to 353 issued after October 1st, there were 213 issued prior to that date, which, being for the fiscal year 1930-31, were necessarily honored, thus making in all 566 Domestic Licenses fished during the season. The estimated amount of all kinds of fish taken on Domestic Licenses was 113,200 pounds. The estimated value of the nets used was $8,490.00.

INDIAN AND HALF-BREED FISHING

While only 40 free Indian and Half-Breed Permits were issued after October 1st, there was a total of 1,130 issued for the fiscal year, meaning that the 1,090 issued before October 1st were also

honored. As Indians fish both summer and winter, this means that 1,130 Indians and Half-Breeds fished during the period covered by this report.

The estimated total amount of all classes of fish taken by Indians and Half-Breeds from October 1st to March 31st was 1,130,000 pounds, and the estimated value of nets used was $11,300.00.

CONDITION OF THE FISHERIES

The condition of the Fisheries in the Province may be considered as fairly good. In some lakes the conditions are exceptionally good.

On Lac Ste Anne and Calling Lake a depletion was shown, and it has been found necessary to prohibit commercial fishing in Lac Ste. Anne for a period of two years, and curtail the fishing to a minimum on Calling Lake, to allow these lakes to come back to a normal condition.

OBSERVATION OF REGULATIONS

The number of prosecutions obtained during the period covered by this report totalled 27, and the number of confiscations 29.

The following information shows a summary of the convictions obtained:—

Fishing without a license	7
Having illegally caught fish in close season	4
Exceeding per diem catch	4
Fishing in close season	3
Fishing with snare	2
Fishing with set line	2
Spearing fish through ice	2
Fishing with illegal nets	1
Fishing outside area prescribed in Regulations	1
Fishing contrary to Regulations appertaining to marking of boats and nets	1
TOTAL	27

From the above it can be seen that the greatest number of offenses were for fishing without a license.

Some assistance was given by the various Sportmen's Organizations in watching lakes where angling was particularly heavy owing to the favourable winter season, and for the first time attempts were made to stock barren lakes during the winter with fish, and assistance was given by these organizations in this regard.

A much closer check was necessary on those fishing under Domestic Licenses and Indian and Half-Breed Permits to prevent these people from peddling fish on these licenses, which they found very little difficulty in doing, owing to good roads and the greater demand for cheaper food.

IRRIGATION SYSTEMS

As no irrigation is carried on during the winter months, no inspections were made of the various irrigation systems throughout the Province, and no reports are, therefore, available. A close check is kept on these irrigation systems during the summer months to prevent loss of fish.

DAMS AND FISHWAYS

As the flow of water during the winter months is usually very low in the various streams where dams are located, and usually the fishways are frozen up and the fish do not, in any case, move in the streams during the winter months, no inspections of fishways were required. A close check is kept on dams and fishways during the summer months.

ANGLING

There was a great increase in the amount of fish, such as Pike, Pickerel and Perch, taken by anglers during the winter season. This was made possible by the good condition of the roads during the entire winter—the anglers were able to travel long distances to the various lakes where angling was permitted.

The increase was also due to a greater number of people being in poor circumstances and requiring the fish for food.

The estimated amount of fish taken by anglers from October 1st to March 31st was as follows:—

Perch	250,000 lbs.
Pickerel	125,000 "
Pike	850,000 "
TOTAL	1,225,000 "

The increase was especially shown in the Wabamun Lake District where a lot of new settlers were in very poor circumstances, and found it necessary to carry on angling for Pike through the ice during the entire winter to supply their families with food.

A large amount of angling was also carried on in Lac la Nonne, Lake Nakamun, Gull Lake, Sylvan Lake, Pine Lake, Buffalo Lake, Lake McGregor, Lake Newell and Hastings Lake.

This latter lake, prior to 1925, contained no Perch, and was stocked that season with 100 adult fish. One hundred and fifty-two persons were counted fishing in this lake in one day, and it was estimated that at least 500,000 Perch were taken from the lake from December 1st to March 31st by anglers.

FISH CULTURE

Prior to the transfer of the resources, the fish hatcheries in this Province were operated by the Federal Government. These comprised a large Whitefish and Pickerel hatchery at Lesser Slave Lake, game fish hatcheries at Waterton and Banff National Parks, a small subsidiary hatchery at Jasper National Park, and one at Spray Lakes. The hatchery at Lesser Slave Lake and the one at Spray Lakes were transferred to the Province free of cost, with all equipment.

The cost of constructing and equipping the Lesser Slave Lake Hatchery was approximately $60,000.00. The Spray Lakes Hatchery, being built of logs and only a temporary affair, was of little value—possibly, altogether, with equipment, some $500.00 at the time of the transfer.

While it was known that the transfer would take place at the end of September, in order that there would be no delay in the collection of eggs for the Lesser Slave Lake Hatchery, the Superintendent then in charge was instructed to make preparations to carry on the collection and operation of the hatchery for the season. An egg collecting camp was established at Whitefish River, some fifty miles North of Grouard, and another camp established on the North shore of Lesser Slave Lake near the Martin River.

The permanent staff at the hatchery at the time of the transfer comprised the Superintendent and one assistant. A large temporary staff was employed for the collection of eggs. At Whitefish Lake five temporary men were employed, and were under the direction of the Superintendent. At the hatchery, and at the spawning camp on the North shore, seven temporary men were employed at the beginning. Two of these later were placed in the engine room as Engineers. They were under the direction of the hatchery assistant during the collection of eggs.

At Whitefish River the necessary traps were placed to catch the fish while going upstream to the spawning beds. A number of retaining pens were placed in the river to retain the fish that were not ready for spawning when taken.

At Lesser Slave Lake pound-nets and gill-nets were used for catching the fish, and the fish not ready to spawn when caught were retained in large nets held in the lake.

Considerable work is entailed in preparing for this collection.

In setting pound-nets a pile driver is required and a number of piles must be driven in order to hold the nets in place. On Whitefish River small stakes are only required for the traps, as the water is shallower and not affected by storms.

Due to extremely fine weather, with very little frost, an exceptionally large collection of eggs was made, and also due to the fine weather the collection was completed much earlier than the former year.

The first eggs were obtained at Lesser Slave Lake on October 20th, and the last on November 7th. At Whitefish Lake the first eggs were obtained on October 23rd, and the last on November 8th. The total number collected at Lesser Slave Lake was 23,750,000, and at Whitefish River was 123,475,000, or a grand total of 147,225,000.

As the capacity of the hatchery is approximately 130,000,000, it was found necessary to distribute 12,525,000 eggs on the spawning beds in Lesser Slave Lake. The balance, after the first loss due to shipment, were placed in the jars.

The total loss in eggs due to natural causes during the winter, and to the end of March, was 20,260,000 or 15.4%, leaving a balance in the hatchery at that date of 114,440,000 "eyed" eggs, which were hatched and distributed later.

Immediately on the completion of the collection, all the temporary staff at the Whitefish River were discharged. Two Engineers and five of the temporary staff were retained at the hatchery for some

time, as three men were required in the hatching room during the day and two men at night, as well as an Engineer both day and night. Later the services of some of these temporary men were dispensed with, and by March 31st the staff was reduced to two temporary men in the hatching room, with the two Engineers, with the hatchery assistant in charge.

As the game fish hatcheries were established within the National Parks, these were retained by the Federal Government, and it was, therefore, necessary to arrange with that Government for a supply of game fish fry for streams outside the Parks. These arrangements were carried out, and the Federal Government placed orders with the United States Bureau of Fisheries, and with private fish farms in the United States for a supply sufficient to fill the requirements within the Parks as well as for the waters outside the Parks, the fry for Provincial waters to be paid for on a cost of operation basis.

As very little of the spawn was delivered to the hatchery before the end of March, nothing further can be reported, except that the estimated distribution in waters outside the National Parks will slightly exceed 2,000,000 fry.

The Spray Lakes Hatchery was not operated this season. It is subsidiary to the Banff Hatchery and can only be used for summer work, chiefly as an egg collecting station. The practice has been to hatch and distribute a part of the fry so obtained in the Spray River watershed.

During the winter several lakes were stocked with Perch by transfer of adult fish from Hastings Lake. Particulars are as follows:—

Cooking Lake	226	Perch
Joseph Lake	255	"
Wanisan Lake	102	"
Islet Lake	200	"

There are a number of small lakes throughout the Province which now contain no fish. Some of these are only suitable for the coarser varieties of fish, such as Perch, Pike-Perch and Pike. These will be examined, and where found suitable for any of the above varieties of fish will be stocked by transfer from other lakes already stocked.

◇ ◇ ◇

STATEMENT OF CASH RECEIPTS "FISHERIES SERVICE"

OCTOBER 1st, 1930, to MARCH 31st, 1931

FISHERMAN'S LICENSES	$2,755.00
DOMESTIC LICENSES	706.00
COMMERCIAL LICENSES	60.00
ANGLING PERMITS	1,166.00
SALES	97.84
FINES	19.00
SUSPENSE	20.00
SUNDRY	25.45
TOTAL	$4,849.29

FISHERIES

LICENSES ISSUED PERIOD OCTOBER 1st, 1930, to MARCH 31st, 1931

MONTH	DOMESTIC	COMMERCIAL	FISHERMEN'S	ANGLING PERMITS	TOTALS
OCTOBER	8	...	11	15	34
NOVEMBER	28	4	71		103
DECEMBER	221	1	374		596
JANUARY	78	...	83		161
FEBRUARY	15	....	12		27
MARCH	3	1	5		9
TOTALS	353	6	556	15	930

NUMBER OF PROSECUTIONS..... 27

NUMBER OF CONFISCATIONS..... 29

REPORT ON AMOUNT OF FISH TAKEN, VALUE, ETC., FROM OCTOBER 1, 1930, TO MARCH 31, 1931

TOTALS

				VALUE AS MARKETED		VALUE TO FISHERMEN		
900,164	WHITEFISH	@	.7	average	$63,011	900,164 @ .5½		$45,459
166,871	PICKEREL	@	.6	average	10,012	166,871 @ .4		6,675
303,993	JACKFISH	@	.3	average	9,119	303,993 @ .3		9,119
12,563	PERCH	@	.7	average	879	12,563 @ .7		879
87,981	TROUT	@	.8	average	7,138	87,981 @ .5¼		4,619
207,146	TULLIBEE	@	.2	average	2,142	207,146 @ .2		2,142
173,130	SUCKERS AND [redacted]LING	@	.1	average	1,731	173,130 @ .1		1,731
1,851,848	lbs.				$94,032			$70,624

ADMINISTRATIVE OFFICE

REPORT OF THE SECRETARY (E. M. GUNDERSON)

A gratifying factor at the close of the fiscal year which ended March 31st, 1931, was the evidence of a surplus of $384,768.54 as a result of the first six months operations of the new Department.

The total cash from all sources received during this period was $713,921.44. Of this amount $574,730.71 was credited to income account, against which refunds of $1,764.85 were made, leaving a net amount credited to income of $572,965.86.

Capital receipts, represented by principal monies collected on land sales were $6,705.39. Cash received, but which could not be applied or which was subject to refund, amounted to $15,009.29, and was carried forward into the next fiscal year. This was made up of the following:—

Improvements	$6,064.00
P. and N. G. Cash Bonds	3,218.60
Unapplied Items	5,726.69

Collections under the School Lands Trust amounted to $113,-749.01. For particulars see Statement "I."

Cash collected up to January 31st, 1931, on account of seed grain, fodder and relief, was transmitted to the Financial Controller at Ottawa. After January 31st, 1931, the collections of these items passed to the Department of Municipal Affairs.

The amount of principal outstanding on land sales, purchased homesteads and pre-emptions at March 31st, 1931, was $648,102.45. The total acreage of these sales amounted to 244,406.24 acres.

Accounts are being set up to record transactions affecting income, and permanent records are being made of those monies affecting capital account. In connection with the sums due or payable to the Dominion Government on lands, mines, minerals or royalties, at September 30th, 1930, and at that date turned over to the administration by and for the benefit of the Province, the Financial Controller, Department of the Interior, has sent the following transcriptions to this Department to make possible the setting up of these various accounts:

Land Sale Accounts, School Lands		4,365
Land Sale Accounts, Provincial Lands		1,853
Petroleum and Natural Gas, Rental Accounts on School Lands	1,964	
Petroleum and Natural Gas, Rental Accounts on Provincial Lands	16,899	
		18,863
Coal Lease Rental Accounts on School Lands	61	
Coal Lease Rental Accounts on Provincial Lands	705	
		766
Grazing Lease Accounts		3,939
Timber Berth Accounts on School Lands	47	
Timber Berth Accounts on Provincial Lands	374	
		421
Quarrying, Dredging, and Miscellaneous Accounts		109
		30,316

The practice of the Dominion was not to charge up rentals or interest until a payment on account was received; therefore after the above accounts have been set up there will be the somewhat drawn-out task of bringing the rentals, instalments and interest up to date.

The Cash received by each Land Agency is as follows:—

Calgary	$255,397.34
Edmonton	205,484.23
Lethbridge	106,730.15
Grande Prairie	11,267.07
Peace River	12,807.89
Administration Office	81,714.17
	$673,400.85

Statement "C" of this report shows the amounts collected by each Agency for the various branches.

LAND PATENTS

Detailed analysis of receipts is given in Statement "D."

Letters Patent

The number of letters patent issued during the period under review was 23, covering an area of 3,019.71 acres.

The various kinds of grants are summarized as follows:

Grants	Patents	Acres
Homesteads	11	1,755.94
Sales	6	535.07
Railways	1	161
School Land Sales	3	481
Supplementary Grants	2	86.70
	23	3,019.71

During this period 71 roadway reservations were made, aggregating a total area of 349.27 acres. Eight roadways were abandoned, comprising 30.995 acres.

Homestead Entries.

Three thousand and thirty-five (3,035) first homesteads were taken up in the six months of this period, covering an approximate area of 485,600 acres. In addition to this, five hundred and sixty-three (563) second entries with an area of approximately 90,080 acres, and one hundred and fifty-three (153) soldier grants with an area of approximately 24,480 acres, were made.

Details as to number of each kind of entry by Agencies are given in Statement "L."

Cancelled Entries.

The cancellations of the different Land Agencies during this period were as follows:—

Edmonton	837
Calgary	49
Lethbridge	27
Peace River	469
Grande Prairie	303
TOTAL	1,685

Land Patents Revenue.

During the period under review there was received on account of principal $6,705.39, and on account of interest, $2,593.34, on the purchased homesteads, pre-emptions and ordinary sales. Homestead fees account for $35,970.00.

The value of improvements collected on cancelled homesteads amounted to $8,336.00, of which $2,272.00 was refunded, the balance of $6,064.00 being subject to refund was carried forward to the next fiscal year. Collections by the Administrative Office on account of land patents amounted to $937.60, and on Statement "D" this is shown as having been allocated to the various Agencies.

MINING LANDS.

Coal Leases.

The total number of coal-mining leases in force at the close of the fiscal year was 678, comprising a total area of 250,300.56 acres.

Royalty on Coal.

Under the regulations covering the issue of leases to mine coal, the royalty at the rate of 5c per ton is charged on the output of the mine on lands held under lease, and at the rate of 7c per ton on properties granted by letters patent.

Royalty on Petroleum and Natural Gas.

Royalty at the rate of 5% was charged on all sale of natural gas, products.

The total cash received on account of Mining Lands for the period on review is $376,406.41; coal rentals, fees and royalties account for $172,201.55; Petroleum and Natural gas rentals, fees and royalties for $198,338.80; quarrying rentals and fees account for $424.12, and mining lands sundry for $2,223.34. Cash bonds totalling $3,218.60 were deposited under Petroleum and Natural Gas Permits.

TIMBER AND GRAZING

There were manufactured from licensed timber berths 14,378,663 feet board measure of lumber in addition to 554,982 laths, 48,809 railway ties, and 51,261 lineal feet of mining timber. Under permit there were manufactured 7,592,495 feet board measure of lumber, 190,000 laths, 354,012 railway ties, besides other various materials.

During the year 37 new berths were granted. The total area at March 31st, 1931, covered by timber berths under license and permit is 1,361.23 square miles.

There were 3,890 grazing leases in force, at the close of the fiscal year.

The total cash receipts under timber and grazing for the period under review were $127,654.05, of which timber accounted for $96,842.09, grazing for $30,505.10, and hay for $43.50. The balance of $263.36 is credited to sundry revenue.

Details of collections by each Agency are shown in Statement "F."

SCHOOL LANDS BRANCH.

During the period no school lands were offered for sale by general public auction.

The net area of school lands disposed of up to March 31st, 1931, after making deductions for cancelled sales and adjustments in regard to change in area, was 1,243,034.9267 acres. The net sale price of this acreage at that date was $17,667,405.42.

The total cash receipts on account of school lands for the period was $113,749.01. Principal monies amounting to $33,406.73 are included in the above amount, and have been transferred to the School Lands Trust Fund Account.

Complete details of cash received on account of school lands are given in Statement "I."

The Alberta School Lands Trust Account at March 31st, 1931, stood at $18,337,457.08. The amount of cash, Dominion of Canada debentures and undue and arrears principal may be ascertained from the Albert School Lands Trust Fund Balance Sheet, as shown in Statement "J."

The statement of cash receipts and disbursements for the year (Statement "K") amalgamates the cash received by Ottawa for the period April 1st to September 30th, 1930, with the cash received by the Province for the period October 1st, 1930, to March 31st, 1931.

The disbursements shown on this statement as $12,825.67, cover the administration expenses of the Alberta School Lands Trust Account for the first half of the fiscal year. This amount was deducted by the Department of Interior from the cheque sent to this department, covering the revenue for the same period.

FORESTRY SERVICE.

The total cash collected by the Forest Service for the period amounted to $29,964.61 of which $28,332.77 was from Timber and Grazing receipts, and $1,631.84 from surface rentals on mining lands. Details of these amounts are given in Statement "G."

FISHERIES SERVICE.

The Fisheries Service collections of this period totalled $4,829.29, made up of $3,521.00 from angling permits, $1,166.00 from fishing licenses, and $142.29 from sundry collections.

The Fisheries Service collections of this period totalled $4,829.29, made up of $3,521.00 from fishing licenses, $1,166.00 from angling permits, and $142.29 from sundry collections.

INDEX TO STATEMENTS.

The following statements prepared as at March 31st, 1931, and covering the period under review, are attached.

A. Statement of Cash Receipts by Branches.

B. Statement of Cash Receipts from All Sources.

C. Statement of Cash Receipts by Agencies.

D. Statement of Cash Receipts Land Patents Branch.

E. Statement of Cash Receipts Mining Lands Branch.

F. Statement of Cash Receipts Timber and Grazing Branch.

G. Statement of Cash Receipts Forestry Branch.

H. Statement of Cash Receipts Fisheries Branch.

I. Statement of Cash Receipts School Lands Branch.

The following statements in connection with the School Lands Fund have been prepared and are attached.

J. School Lands Trust Balance Sheet as at March 31st, 1931.

K. Statement of Cash Receipts and Disbursements for the Year ended March 31st, 1931.

Statements showing number and kinds of homestead entries, country of origin, and number of souls therefrom, for the period October 1st, 1930, to March 31st, 1931, are attached and lettered as follows:

L. Statement of Homestead Entries Granted.

M. Statistical Statement of Nationalities.

Statement A.

GOVERNMENT OF THE PROVINCE OF ALBERTA
DEPARTMENT OF LANDS AND MINES

STATEMENT OF CASH RECEIVED BY BRANCHES FOR PERIOD OCTOBER 1, 1930, TO MARCH 31, 1931

Land Patents Branch	$54,136.34
Timber and Grazing Lands Branch	127,654.05
Mining Lands Branch	376,406.41
School Lands Branch	113,749.01
Seed Grain, Fodder and Relief	1,455.04
Total Cash Received by Land Agencies	$673,400.85
Forestry Branch	29,964.61
Fisheries Branch	4,829.29
Total Cash Receipts Allocated	$708,194.75
Unapplied Receipts	5,726.69
TOTAL CASH RECEIPTS	$713,921.44

Statement B.

GOVERNMENT OF THE PROVINCE OF ALBERTA
DEPARTMENT OF LANDS AND MINES

STATEMENT OF CASH RECEIPTS FROM ALL SOURCES FROM OCTOBER 1, 1930, TO MARCH 31, 1931

	Gross Receipts	Refunds	Net Revenue
INCOME ACCOUNT.			
Homestead Fees	$35,970.00	$40.00	$35,930.00
Land Sales Interest	2,592.34		2,592.34
Land Patents Sundry Revenue	532.61		532.61
Timber Fees, Dues, Royalty, etc.	121,534.09	448.50	121,085.59
Grazing Fees, Dues, Rentals, etc.	33,849.89	141.65	33,708.24
Hay Fees, Dues, etc.	48.50		48.50
Timber and Grazing Sundry Revenue	554.34	1.00	553.34
Coal-mining Fees, Rentals, etc.	66,941.04	715.45	66,225.59
Coal-mining Royalty	105,260.51	134.00	105,126.51
Petroleum and Natural Gas:			
Fees, Rental, etc.	87,455.96	82.50	87,373.46
Royalty	110,882.84		110,882.84
Quarrying Lease Fees and Rentals	424.12		424.12
Surface Rentals	1,631.84		1,631.84
Mining Lands Sundry Revenue	2,223.34	200.00	2,023.34
Fishing Licenses	3,521.00		3,521.00
Angling Permits	1,166.00	1.75	1,164.25
Fisheries Sundry Revenue	142.29		142.29
TOTALS: Income Account	$574,730.71	$1,764.85	$572,965.86
CAPITAL ACCOUNT.			
Land Sales Principal Monies	6,705.39		6,705.39
TOTALS: Income and Capital Accounts	$581,436.10	$1,764.85	$579,671.25
UNAPPLIED RECEIPTS CARRIED FORWARD (Subject to Refund).			
Improvements	8,336.00	2,272.00	6,064.00
Petroleum and Natural Gas Cash Bond	3,218.60		3,218.60
Suspense Items	5,726.69		5,726.69
	$598,717.39	$4,036.85	$594,680.54
TRUST ACCOUNTS.			
School Lands Trust Fund	113,749.01		
Seed Grain, Fodder and Relief	1,455.04		
TOTAL CASH RECEIVED	$713,921.44		

GOVERNMENT OF THE PROVINCE OF ALBERTA
DEPARTMENT OF LANDS AND MINES

STATEMENT OF CASH RECEIPTS BY AGENCIES
OCTOBER 1, 1930, TO MARCH 31, 1931

Agency	Land Patents Branch	Timber & Grazing Branch	Mining Lands Branch	School Lands Branch	Seed Grain, Fodder & Relief	Total
Calgary	4,701.13	17,367.67	208,366.90	24,331.84	629.80	255,397.34
Edmonton	27,649.64	78,117.80	79,754.45	19,529.95	432.39	205,484.23
Lethbridge	2,839.09	19,046.96	70,187.33	14,263.92	392.85	106,730.15
Grande Prairie	7,479.71	1,339.32	341.05	2,106.99	.....	11,267.07
Peace River	10,529.17	1,560.35	281.78	436.59	.....	12,807.89
Administrative Office	937.60	10,221.95	17,474.90	53,079.72	.....	81,714.17
	$54,136.34	$127,654.05	$376,406.41	$113,749.01	$1,455.04	$673,400.85

Statement D.

GOVERNMENT OF THE PROVINCE OF ALBERTA
DEPARTMENT OF LANDS AND MINES
LAND PATENTS BRANCH
STATEMENT OF CASH RECEIPTS—OCTOBER 1, 1930, TO MARCH 31, 1931

	Calgary	Edmonton	Lethbridge	Grande Prairie	Peace River	Administrative Office	Total
Homestead Fees	$1,890.00	$22,280.00	$290.00	$4,630.00	$6,880.00		$35,970.00
Land Sales, Principal	1,002.20	1,884.02	1,151.35	1,499.99	452.83	715.00	6,705.39
Land Sales, Interest	1,179.83	462.81	734.54	110.62	86.94	17.60	2,592.34
Land Patents, Sundry	243.10	60.31	13.20	6.10	4.90	205.00	532.61
Improvements	386.00	2,962.50	650.00	1,233.00	3,104.50		8,336.00
	$4,701.13	$27,649.64	$2,839.09	$7,479.71	$10,529.17	$937.60	$54,136.34
Head Office Revenue Allocated to Agencies	144.00	50.00	68.60	24.00	651.00		
	$4,845.13	$27,699.64	$2,907.69	$7,503.71	$11,180.17		$54,136.34

GOVERNMENT OF THE PROVINCE OF ALBERTA
DEPARTMENT OF LANDS AND MINES
MINING LANDS BRANCH
STATEMENT OF CASH RECEIPTS—OCTOBER 1, 1930, TO MARCH 31, 1931

	Calgary	Edmonton	Lethbridge	Grande Prairie	Peace River	Administrative Office	Total
Coal: Rentals, Fees, etc.	$25,529.08	$33,961.00	$5,261.91	$286.75	$5.00	$1,897.30	$66,941.04
Royalty	39,194.24	35,095.48	29,812.29	28.30		1,130.20	105,260.51
Petroleum and Natural Gas:							
Rentals, Fees, etc.	34,343.98	10,289.96	29,194.12	15.00		13,612.90	87,455.96
Royalty	107,906.84	65.11	2,910.89				110,882.84
Cash Bonds			2,386.60			832.00	3,218.60
Quarrying:							
Rentals, Fees, etc.	38.26	100.00	109.08		176.78		424.12
Mining Lands, Sundry	1,354.50	242.90	512.44	11.00	100.00	2.50	2,223.34
	$208,366.90	$79,754.45	$70,187.33	$341.05	$281.78	$17,474.90	$376,406.41
Head Office Revenue Allocated to Agencies	9,173.00	1,321.05	6,975.85	5.00			
	$217,539.90	$81,075.50	$77,163.18	$346.05	$281.78		$376,406.41

GOVERNMENT OF THE PROVINCE OF ALBERTA
DEPARTMENT OF LANDS AND MINES
TIMBER AND GRAZING BRANCH
STATEMENT OF CASH RECEIPTS—OCTOBER 1, 1930, TO MARCH 31, 1931

	Calgary	Edmonton	Lethbridge	Grande Prairie	Peace River	Administrative Office	Total
Timber: Permits, Fees and Dues.....	$9,317.45	$76,758.70	$44.00	$849.84	$812.10	$9,060.00	$96,842.09
Grazing: Rentals, Fees.....	7,946.26	1,260.95	18,950.96	480.98	728.00	1,137.95	30,505.10
Hay: Fees and Dues.....		25.00		2.50	16.00		43.50
Timber and Grazing, Sundry.....	103.96	73.15	52.00	6.00	4.25	24.00	263.36
	$17,367.67	$78,117.80	$19,046.96	$1,339.32	$1,560.35	$10,221.95	$127,654.05
Head Office Revenue Allocated to Agencies.....	392.17	9,345.51	236.08	75.70	172.49		
	$17,759.84	$87,463.31	$19,283.04	$1,415.02	$1,732.84		$127,654.05

Statement G.

GOVERNMENT OF THE PROVINCE OF ALBERTA
DEPARTMENT OF LANDS AND MINES

FORESTRY SERVICE

STATEMENT OF CASH RECEIPTS
FROM OCTOBER 1, 1930, TO MARCH 31, 1931

Timber and Grazing Lands Branch.		
Timber Permits, Fees and Dues	$24,692.00	
Grazing Rentals and Fees	3,416.79	
Hay Fees and Dues	5.00	
Sundry	218.98	
		$28,332.77
Mining Lands Branch.		
Surface Rentals	$1,631.84	
		1,631.84
		$29,964.61

◇ ◇ ◇

Statement H.

GOVERNMENT OF THE PROVINCE OF ALBERTA
DEPARTMENT OF LANDS AND MINES

FISHERIES SERVICE

STATEMENT OF CASH RECEIPTS

FROM OCTOBER 1, 1930, TO MARCH 31, 1931

Angling Permits	$1,166.00
Fishing Licenses	3,521.00
Sundry	142.29
	$4,829.29

Statement I.

GOVERNMENT OF THE PROVINCE OF ALBERTA
DEPARTMENT OF LANDS AND MINES

ALBERTA SCHOOL LANDS

STATEMENT OF CASH RECEIPTS
FOR THE PERIOD OCTOBER 1, 1930, TO MARCH 31, 1931

Sales—Principal	$33,406.73
Sales—Interest	40,983.63
Cultivation Permits	1,845.55
Grazing Permits	13,645.44
Timber Permits, Seizures, etc.	3,409.48
Hay Permits	3.50
Coal Rental, Royalty, etc.	10,117.87
Petroleum and Natural Gas, Rental, Royalty, etc.	9,253.66
Registration and Assignment Fees	143.50
Miscellaneous	60.33
Total Receipts Applied	$112,869.69
Unapplied Receipts	879.32
	$113,749.01

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Statement J.

GOVERNMENT OF THE PROVINCE OF ALBERTA
DEPARTMENT OF LANDS AND MINES

ALBERTA SCHOOL LANDS TRUST

BALANCE SHEET
MARCH 31, 1931

ASSETS

Trust			
Cash in Bank		$33,406.73	
Dominion of Canada:			
Debentures	$9,500,000.00		
Deposit Receipt	64,569.20		
		9,564,569.20	
Accounts Receivable:			
Undue Principal	$6,406,234.25		
Arrears Principal	2,333,255.94		
		8,739,490.19	
			$18,337,466.12
Revenue			
Cash in Bank		$80,246.49	
Dominion of Canada Deposit Receipt		72,582.11	
Accounts Receivable:			
Arrears Interest		1,676,344.42	
			$1,829,173.02
			$20,166,639.14

LIABILITIES

Trust		
Suspense	$9.04	
Alberta School Lands Trust Account	18,337,457.08	
		$18,337,466.12
Revenue		
Alberta School Lands Revenue Account	$1,828,389.49	
Suspense	783.53	
		$1,829,173.02
		$20,166,639.14

GOVERNMENT OF THE PROVINCE OF ALBERTA

DEPARTMENT OF LANDS AND MINES

ALBERTA SCHOOL LANDS

STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS FOR THE YEAR ENDED MARCH 31, 1931

RECEIPTS

Cash Balance, April 1, 1930		$822.68
Sales—Principal	$97,153.25	
Sales—Interest	73,528.54	
Cultivation Permits	5,150.45	
Grazing Permits	22,915.68	
Timber Permits, etc.	9,176.82	
Hay Permits	574.75	
Coal Rental, Royalty, etc.	16,157.23	
Petroleum and Natural Gas Rental: Royalty and Sundry	31,492.79	
Registration and Assignment Fees	566.15	
Miscellaneous	152.07	
Interest on Bank Balance	5,156.26	
		262,023.99
		$262,846.67

DISBURSEMENTS

Administration Expenses Charged by Department of the Interior.		
Salaries	$13,075.25	
Printing and Stationery	187.95	
Office Expenses	10.71	
Advertising	807.76	
Miscellaneous	50.00	
	$14,131.67	
Less Refunds	1,306.00	
		$12,825.67
Cash Balance, March 31, 1931		$250,021.00

GOVERNMENT OF THE PROVINCE OF ALBERTA
DEPARTMENT OF LANDS AND MINES

HOMESTEAD ENTRIES GRANTED FOR THE PERIOD FROM OCTOBER 1, 1930, TO MARCH 31, 1931

	First Homestead	Second Homestead	Soldier Grants	Total
Edmonton Agency	1,889	340	81	2,310
Calgary Agency	135	54	11	200
Lethbridge Agency	21	8	1	30
Grande Prairie Agency	381	83	22	486
Peace River Agency	616	72	34	722
TOTALS	3,042	557	149	3,748

GOVERNMENT OF THE PROVINCE OF ALBERTA
DEPARTMENT OF LANDS AND MINES

STATISTICAL SUMMARY OF NATIONALITIES FOR THE PERIOD OCTOBER 1, 1930, TO MARCH 31, 1931

Country of Origin	No. of Entries	No. of Souls
Canada	1,081	2,177
England	156	365
Scotland	68	158
Ireland	19	65
Wales	16	30
United States	386	948
Austria	67	221
Belgium	6	13
Bohemia	1	1
Czecho-Slovakia	62	168
Denmark	60	96
Esthonia	1	3
Finland	10	26
France	10	25
Germany	165	274
Holland	13	18
Hungary	33	97
Jugo-Slovakia	8	31
Lithuania	12	21
New Zealand	1	1
Norway	86	154
Poland	533	1,464
Roumania	53	201
Russia	81	271
Serbia	1	1
Siberia	2	2
Sweden	66	126
Switzerland	5	12
Ukrania	26	72
Greece	1	4
South America	1	1
Italy	2	13
Latvia	2	2
Jamaica	1	1
	3,035	7,062

Had Previous Entry..... 629

ANNUAL REPORT

OF THE

Department of Lands and Mines

OF THE

PROVINCE OF ALBERTA

FOR THE

Fiscal Year ended March 31, 1932

PUBLISHED BY ORDER OF THE LEGISLATIVE ASSEMBLY

EDMONTON:
PRINTED BY W. D. McLEAN, KING'S PRINTER
1933

To the Honourable W. L. Walsh,
Lieutenant-Governor of the Province of Alberta.

SIR:

I have the honour to submit herewith the report of the Department of Lands and Mines for the fiscal year ended March 31st, 1932.

I have the honour to be, Sir,

Your obedient servant,

R. G. REID,
Minister of Lands and Mines.

EDMONTON, November 2nd, 1932.

TABLE OF CONTENTS

Page

REPORT OF THE DEPUTY MINISTER 7

I—PROVINCIAL LANDS ADMINISTRATION

Report of the Edmonton Land Agency 16

Calgary Land Agency 18

Lethbridge Land Agency 20

Peace River Land Agency 21

Grande Prairie Land Agency 23

II—PETROLEUM AND NATURAL GAS

Report of the Director of Petroleum and Natural Gas 25

III—FORESTRY

Report of the Director of Forestry 40

IV—FISHERIES

Report of the Director of Fisheries 55

V—ACCOUNTING DIVISION

Report of the Assistant Accountant 67

CHIEF OFFICERS,
DEPARTMENT OF LANDS AND MINES
March 31st 1932

Honourable R. G. Reid	*Minister of Lands and Mines*
John Harvie	*Deputy Minister of Lands and Mines*
T. C. Rankine	*Departmental Solicitor*
W. Calder	*Director of Petroleum and Natural Gas*
T. F. Blefgen	*Director of Forestry*
R. T. Rodd	*Director of Fisheries*
A. A. Millar	*Chief Inspector Coal-mines Regulation Act*
I. N. McKinnon	*Assistant Accountant*
J. W. Stafford	*Agent, Edmonton Land Agency*
M. Gossip	*Agent, Calgary Land Agency*
R. Cruickshank	*Agent, Lethbridge Land Agency*
A. B. Spence	*Agent, Peace River Land Agency*
J. J. E. Clarke	*Agent, Grande Prairie Land Agency*
F. W. Neilson	*Chief Timber Inspector*
T. W. Dalkin	*Technical Division*
J. L. Irwin	*Statistician*

REPORT
OF THE
Department of Lands and Mines
1931-32

HONOURABLE R. G. REID,
Minister of Lands and Mines,
Edmonton.

SIR:

I have the honour to submit the second annual report of the Department of Lands and Mines for the fiscal year ended March 31st, 1932.

The period under review is representative of the first complete fiscal year of the Department, the previous period being confined to only six months on account of the official date of transfer of the natural resources materializing on October 1st, 1930, which was in the middle of the fiscal year.

It was not until twelve months had elapsed from the date upon which the Province assumed control of the new administration that the vast bulk of files and records were received from the Dominion of Canada and it was only towards the close of the fiscal year, after the lengthy and somewhat strenuous business of preliminary organization was completed, that the administration of this Department was set into easier motion.

PROVINCIAL LANDS ADMINISTRATION

Land subsidies which had been granted in the western provinces to aid in the construction of railways and granted also to the Hudson's Bay Company are shown, as applicable to this Province up to the date of transfer of the resources, in the following table:

	Alberta mileage	Alberta acreage patented
Calgary and Edmonton Railway Company	295.07	1,806,168
Alberta Railway and Coal Company	174.12	1,096,217
Souris Branch, Canadian Pacific Railway Company	Nil	160
Pipestone Extension, Souris Branch, Canadian Pacific Railway Company	Nil	521
Great North West Central Railway Company	Nil	640
Manitoba Southwestern Colonization Railway Company	Nil	319,680
Canadian Northern Railway Company	Nil	859
Manitoba and Southeastern Railway Company	Nil	312
Canadian Pacific Railway Company	332.10	9,807,174
TOTAL	801.29	13,031,731

In the four western provinces of Manitoba, Saskatchewan, Alberta and British Columbia, 3,527.26 miles of railway were constructed, each Company being given a land subsidy to aid in the construction of its own particular railway. In the four provinces combined, a total of 31,672,006 acres was transferred to the different companies as land subsidies for the railway mileage so constructed.

In this connection, a total of only 801.29 miles was representative of railway construction in Alberta. But in spite of this small mileage no less than 13,031,731 acres has been granted out of Alberta lands, a figure greatly in excess of the actual acreage earned by the construction of transportation lines within this Province. In addition to this, these land subsidies which were granted carried to the new ownership, in practically every instance, all minerals underlying such lands.

In compliance with the Agreement of the nineteenth of November, 1869, the Hudson's Bay Company acquired the right to one-twentieth of all lands in the fertile belt of the three western provinces set out for settlement, and there has been granted by the Dominion of Canada a total of 2,404,000 acres within the Province of Alberta, as representative of land subsidies to the Hudson's Bay Company under the terms of this Agreement.

Notifications Issued

Notwithstanding the absence of records the granting of titles has continued expeditiously, a total of 784 of such notifications having been issued during this period, the bulk being applicable to homesteads, soldier grants and school lands sales with the balance distributed over free grants, sales of different kinds, railway rights-of-way, road diversions, townsites, church sites, cemetery sites, school sites and other forms of patents.

Notifications issued during the fiscal year comprised an area of 111,424.478 acres, made up as follows:

	Notifications	Acres
Homesteads	632	99,261.668
Sales	24	855.44
Soldier grants	49	7,332
Pre-emption sales	3	480
Special grants	15	369.26
Quit claim, special grants	1	8.62
School lands sales	34	2,937.59
Railways	26	179.90
TOTAL	784	111,424.478

Homestead Entries

Homestead and soldier grant entries during the year reached a total of 4,428, covering an area of approximately 708,480 acres, as compared with 3,748 entries with an approximate acreage of 599,480 granted during the previous six months. The total of 4,428 entries for this period is made up of 3,876 first homesteads, 522 second homesteads and 30 soldier grants. Homestead entries granted to women totalled 1,521, which figure is included in the first homestead total of 3,876. Regarding this last figure of 3,876 first homesteads, 411 persons had held previous entries which had been cancelled prior to re-entry in more favourable locations.

The total of 3,876 persons to whom first homestead entries were granted, added to the number of their wives, children and dependents, comprised a grand total of 12,169 souls. Of these, 4,559 (37.46 per cent.) were of Canadian nationality, 1,238 (10.17 per cent.) were from Great Britain, 2,664 (21.89 per cent.) from the United States, and 3,708 (30.47 per cent.) from other countries.

The trend of settlement during this period was in the district covered by the Edmonton Land Agency, the bulk of entries granted running from the Edson area in the west, up to Athabasca in the

north and down to Bonnyville in the neighbourhood of Cold Lake in the east. A certain amount of filing took place in the Lac La Biche district, but the areas chosen there were few in number and scattered.

Entries in the Peace River Agency almost doubled those of Grande Prairie. In a total of 973 first homesteads granted in the Peace River district, approximately half of this number was filed on by women, whose entries totalled 498 out of the 973.

Considering that homestead entries were discontinued during the period of this report from February 14th to July 2nd, and that subsequent to July 2nd they were available only to those applicants who had been resident in the Province for the specified period prior to application with the fee increased from $10.00 to $50.00, the numbers granted during the year reached a very satisfactory total.

School Lands Purchase Contracts

Many of the statements received from Ottawa as to outstanding indebtedness on contracts for the purchase of school lands indicated that settlers had been permitted to hold these lands for a great many years without due regard having been shown for the necessity of maintaining the terms of the contract in reasonably good standing.

The absence of complete records surrounding many of these cases made it impossible for the Province to take any action during the crop season of 1931 regarding the enforcement of payment. The possession of these documents constitutes a necessary factor towards the general adjustment of this situation and the delay in their arrival made it impossible for any definite steps to be taken.

Work of the Technical Division

Work of the Technical Division of the Department includes among other things the recording of railway and settlement plans, together with plans of survey for new road diversions, requests for the latter emanating from the Department of Public Works, municipal districts and railway companies. In this particular section of the work, 379 railway plans, including old and new railway lines, 75 settlement plans and 221 plans of survey of new road diversions were recorded during the fiscal year.

A feature of interest shown by this Division was the arrival from Ottawa of several thousands of fiats, the examination of which will alone represent a considerable undertaking. Certain records were retained by the Dominion of Canada which would facilitate the examination of documents relating to the nature of any grant issued during the administration of the resources by the Federal Government. The lack of these records, which are of a nature which prohibits their transfer to any individual province, necessitates a reconstruction of provincial records to be set up for a similar purpose.

A new map of the Province was published shortly after the transfer of the resources which showed features covering new railway lines, new surveys, changes of boundaries in Indian Reserves, forest reserves, parks, new townsites, post-offices and other locations. Complete information having been compiled from both the soil survey reports of the Federal Government and from those of the Research Council of the University of Alberta, a map of the

Province, showing by means of colours the various classifications of soil was prepared. Co-operation with the Forest Service in this particular was effected so that information, sent in from time to time by forest rangers, could be incorporated with information already on hand in order that the future issuance in map form of data covering soil surveys of the Province might be readily carried out.

Sketch plans have also been prepared dealing with specified areas showing boundaries of land agencies and sub-agencies. In addition to these, attention has been given to the preparation of similar plans dealing with homesteads, coal and oil areas together with plans covering a variety of technical subjects which were informative in detail to meet demands as they might arise from time to time.

Coal Production

The general mildness of the winter and limited railway consumption of coal, due to the halted movement of grain, contributed the principal reasons for the noticeable stagnation of industry in the various mines throughout the Province during the year.

Regular inspections of mines involving the investigation and settlement of wage claims together with the safety of operations as laid down by the regulations, were carried on. The administration of the Coal-miners' Wages Security Act increased steadily in its demands for careful and detailed attention and represented an important and responsible portion of the Division's duties.

Co-operation between the Division and the Research Council of Alberta was continuously carried out in the matter of submitting large numbers of samples for analysis. These samples were representative of coal seams in different areas of the Province and the business of collecting and shipping them for examination occupied a large and important section of the work involved.

The report of the Alberta Coal Commission in 1925, touching generally on the size and value of coal areas, described the Province as holding 14.53 per cent. of the world's known coal resources and 87.10 per cent. of Canada's. With such established figures and with a return to normal industrial conditions, it is not difficult to visualize the important part that is waiting to be played by this vast and immeasurably wealthy section of the Province's resources.

Statistical information covering provincial coal-mining activities is given in complete detail in the published annual report of the Chief Inspector of Mines for the period of the calendar year, 1931.

Soil Surveys

The report of Dr. F. A. Wyatt, Department of Soils, University of Alberta, contained in the twelfth annual report of the Research Council of Alberta for the calendar year ending December 31st, 1931, gives the details of three soil surveys carried out during this period. The ground inspected in these surveys covers the area adjacent to Lac la Biche, the area from Beaver River near Lac la Biche, north to Cheecham on the Waterways railway and the area from Grouard to Peace River.

The ground covered by these three surveys comprised a total of 8,008,370 acres. Of this total, the first two classes, shown in the report as second class park land and first class wooded land, cover

an area of 495,180 acres, which is practically all taken up. Certain sections of the second class wooded soils are likewise settled upon. In the first three classes of soils shown it is estimated that there are at least half a million acres suitable for immediate settlement.

Lumber Manufactured

Lumber manufactured from timber cut by holders of licensed and permit berths on provincial lands reached a total of 36,562,070 feet, board measure, with an additional 1,454,022 feet from timber procured from school lands berths, whilst timber cut from timber sales on forest reserves scaled a total of 808,000 feet, board measurement.

Lack of markets seriously affected the lumber industry during this period. The situation, mentioned in last year's annual report, relating to the competition presented by British Columbia products, was again particularly noticeable. The large export trade of the neighbouring Province extended into Alberta for the lower grades of lumber, which seriously interfered with the operations of local mills. Railway demand for ties was also very much restricted, due partly to heavy stocks on hand and partly to limited construction work, which added a still further restriction to logging operations on a general scale. The lumber industry during the year suffered a noticeable reverse on account of these reasons, and it was necessary for many of the larger companies to close down their operations.

Petroleum and Natural Gas

Delay in receiving Dominion Government records from Ottawa was largely responsible for the activities of the Petroleum and Natural Gas Division being handicapped during this period. Upon arrival, the arrangement and dissecting of their contents for provincial administrative needs necessitated especially intensive work which lasted until the close of the calendar year.

The head office of the Division in Edmonton has, during this period, recorded all drilling operations, compiled oil and gas production statements and carried on with the examination of all geological samples recovered during the drilling of wells. Regarding this last function, 9,159 samples were examined and reported on to individual operators.

During the fiscal year, 1,801 inspections were carried out over a wide-spread area, many taking place in isolated and remote portions of the Province. The publication of a schedule dealing with all wells drilled in Alberta has proved of particular value, contributing as it does to the geological history of the Province's petroleum industry. A peg model was also prepared of the Turner Valley area which showed all sub-surface geological details, giving to scale for the first time the exact conditions as disclosed by the examination of strata samples.

The problem of water encroachment, the principal enemy to the efficient development of oil, was given serious attention and by the rigid enforcement of the new regulations, cementation of wells to shut off surface water troubles was brought into effect. The result of this necessary step has proved particularly beneficial in the Medicine Hat area, where this trouble was especially noticeable, and excellent results have also been obtained in other fields.

The seriousness of gas wastage in Turner Valley resulted during this period in a public meeting at which oil operators were invited to consider the necessity of a voluntary conservation, which led eventually to the services of a gas engineering specialist from the United States being secured with a view to the preparation of an agreement which would be equitable to all concerned.

In the face of difficulties, wells were closed in and tested, and with the data secured as a result, the specialist, in collaboration with two representatives chosen by the operators, prepared a draft agreement, which was submitted to those interested.

After a hearing before the Agricultural Committee of the Legislature, legislation was promulgated for the appointment of a Control Board to reduce the wastage. From the 1st of October, 1930, to the end of March, 1932, the estimated waste of natural gas in the Province reached the colossal figure of 230 billion cubic feet. With present annual requirements based at 18.3 billion cubic feet, this figure represents the dissipation of a supply sufficient for all needs covering a period of twelve and a half years.

With reference to the settlement of this important public question, many factors presented themselves for solution, and in fairness to the operators, who may have seemed to object to the proposed methods for conservation, it must be said that the various suggestions which were brought forward were made with the best of intentions for the future of Alberta's oil industry.

The restriction of development, resulting from the financial depression, in the Wainwright, Ribstone, Skiff and Red Coulee areas, combined with conservation efforts in Turney Valley, resulted in a reduction of output in all grades of oil, in comparison with last year's figures, with the exception of heavy crude. The following table shows general totals:

ANNUAL PRODUCTION FOR FISCAL YEARS

	1930–1931 Barrels	1931–1932 Barrels
Naphtha	1,496,457	1,143,875
Light Crude	104,183	86,000
Heavy Crude	13,562	16,453
TOTALS	1,614,202	1,246,328

Forest Service

One of the worst fire seasons on record faced the new Forestry Division in the first year of its existence. The mildness of the winter of 1930-1931, with its exceptionally light snowfall, left the ground and forest cover in an extremely hazardous condition in the spring.

Unemployment on a general scale suggested a fire incentive to many people, in that fire-fighting wages exceeded those generally paid for manual labour. This condition of affairs represented a serious difficulty throughout the Dominion and the United States, and was corrected as far as this Province was concerned by a general lowering of the fire-fighting wage scale with regard to the various classes of labour employed. The effect due to this change was immediately apparent.

In addition to the menace of incendiarism, instigated for unemployment reasons or to satisfy a grudge by the destruction of property, the Forest Service had to contend with a third major

source of forest fires which emanated from the carelessness of campers and land seekers. This source has long presented a very definite hazard, particularly in the northern and western portions of the Province in what was termed the Edmonton Fire Ranging District.

The administration of The Prairie Fires Act was taken over by the Forest Service in the spring of 1931. This act, previously functioning under the Department of Agriculture, was transferred for administration so that more co-ordinated action in matters relating to fire prevention could be obtained. During this year, also, by *ex-officio* appointments through the Board of Railway Commissioners, the Provincial Division exercised control over fires originating from the construction or operation of railways.

The Oliver Farm, near Edmonton, administered by the Provincial Government, was chosen in the autumn of 1931 as a suitable location for a forest nursery, and the removal of such nursery stock as was available from the Cooking Lake Reserve to the Oliver Farm was carried out successfully. A considerable amount of this stock will be ready for distribution next spring with a view to supplying desirable species for re-forestation. Such a move will serve as an enlargement to the work now being carried on by the Indian Head Nursery, administered by the Federal Department of Agriculture, without in any way conflicting with it. It will also serve as the establishment of a provincial re-forestation policy.

Prior to the inclusion of a forest nursery at the Oliver Farm, a considerable amount of lodgepole pine seeding was carried out by the unemployment camps operating in the forest reserves. With the launching of the nursery at Oliver, the balance of the seed at these camps was sent to the farm. Approximately eight hundred thousand lodgepole pine seedlings, it is now estimated, will be ready for transplanting at Oliver by the spring.

Fisheries

The handicap to commercial fishing, referred to in the last annual report of this Department as due to lack of export and local markets, for which the general state of the times was alone responsible, has continued throughout this period. The same conditions were responsible also for the drop in tourist traffic and consequent falling off in the issue of angling permits.

A feature of this situation, however, reflects advantageously on the future of the provincial fisheries due to the fact that a number of lakes have in recent years been fished almost to the point of depletion, and the present drop in general activity will give the matter of fish propagation an opportunity to replenish the waters.

The process of stocking Alberta lakes and streams with fish both indigenous and non-indigenous in species has been continued throughout this period.

During the season, 94 plantings from the Banff hatchery and 63 plantings from Waterton Lakes hatchery of trout fry were

made into waters outside the parks. Details of these plantings are as follows:

FROM BANFF HATCHERY—	
Rainbow trout	315,500
Cut-throat trout	420,000
Brown trout	290,000
Loch Leven trout	218,000
TOTAL	1,243,500
FROM WATERTON LAKES HATCHERY—	
Rainbow trout	582,000
Cut-throat trout	411,000
TOTAL	993,000

Arrangements for the continuation of this work have been made with an additional 200,000 Rainbow trout to be hatched at Jasper Park, the fry to be distributed in the Edson district and Brazeau Forest Reserve.

At the Lesser Slave Lake hatchery, the eyed whitefish eggs, numbering a total of 114,400,000, which were referred to in last year's annual report of the Department as being in the Lesser Slave Lake hatchery at the end of the fiscal year, were hatched without further loss, and the total quantity of this fish fry was successfully planted in Lesser Slave Lake by May 16th, 1931.

The stocking of various species of trout such as the Rainbow, Cut-throat, Brown and Loch Leven over a province-wide area, has greatly strengthened Alberta's position from the angler's viewpoint. Success of this stocking has already been demonstrated even to the planting of fish fry not indigenous to the waters.

The help and co-operation of railways, departments of the Dominion Government and private individuals in carrying out this important and interesting work facilitated matters very considerably, in return for which an expression of appreciation on behalf of this Department is especially tendered.

With a view to the encouragement of increased sale of fish during the stress of hard times, Alberta, in conjunction with other western provinces, endeavoured to meet the situation by a revision of regulations and by the extension of fishing seasons. In addition to this, the residents of the Province took advantage of the privilege of free angling which was allowed them in waters not frequented by game fish, and carried on this method of fishing in these waters to a greater extent than ever before on account of the concession offering the dual advantage of sport combined with the provision of fish for the table, free of cost.

Unproductive Period

As a result of the world-wide economic situation, it has been impossible for the Department during this period to witness any definite form of constructive development. With purchasing power reduced to a minimum, the danger of over-production faced many an enterprise, with industrial stagnation following as a natural conclusion.

The period covered by this report, while unproductive from an industrial standpoint, is destined nevertheless to fill an important niche in the history of the Province. It has been a period of not only an intensive organization, but also of active preparation for the return of normal times and the re-awakening of industrial

activity. An interim in which the building of a solid foundation in anticipation of such a return may ensure the permanence of future prosperity regarding the natural resources of this Province. The business of organization during the opening periods of this new Department has necessitated an intensive application to detail.

Following the official transfer of the resources, the preliminary work, necessary to the guidance of efficient administration, represented a long and strenuous effort on the part of all members of the staff. The work has been carried out thoroughly and expeditiously, and an expression of appreciation to all concerned is made in return.

Individual detailed reports from the various divisions of the Department follow.

Your obedient servant,

J. HARVIE,
Deputy Minister.

October 31st, 1932.

Provincial Lands Administration

REPORT OF THE EDMONTON LAND AGENT, J. W. STAFFORD.

During the period covered by this report no decrease is discernable in the volume of correspondence and in the number of people doing business personally at the office from day to day.

While the revenues received are not as large as anticipated this is, no doubt, due to the general financial condition of the country at this time. The volume of work involved has not decreased, but it has required a greater amount of labour and effort to achieve these results during this period than in former years.

The right of homestead entry was withdrawn on the 14th of February, 1931, and was not re-established until the 2nd of July following, which chiefly accounts for the fewer number of entries granted during the period covered by this report.

The following business has been transacted in addition to the collection of the ordinary revenue and the transaction of other business of a routine nature:

Homestead entries granted	2,547
Soldier entries granted	19
Applications for grazing leases	52
Applications for petroleum and natural gas rights	28
Applications for coal–mining leases	16
Prospectors' licenses issued	5
Certificates of work issued (quartz)	2
Placer claims granted	8
Cultivation permits issued, school lands	8
Grazing permits issued, school lands	443
Grazing permits issued, provincial lands	2
Timber permits issued	1,210
Number of applications for patents received	397
Number of applications for cancellation received	995
Number of entries cancelled	1,302

Of the homestead entries granted, 2,218 were first homesteads and 329 were second homesteads. Homestead entries to women accounted for a total of 716.

The following statement sets forth clearly the amount of revenue collected during each month with classification thereof:

Month	Lands	Timber and Grazing	Mining Lands	School Lands	Total
1931—					
April	$ 879.53	$ 21,401.05	$ 13,220.47	$ 4,917.55	$ 40,418.60
May	561.51	12,203.21	7,585.03	2,921.68	23,271.43
June	367.20	20,614.35	4,237.40	2,317.13	27,536.08
July	7,507.53	8,592.18	12,382.22	3,147.99	31,629.92
August	6,273.37	13,563.57	1,231.02	926.62	21,994.58
September	4,745.70	10,050.71	10,025.33	988.05	25,809.79
October	2,821.70	11,128.31	13,153.37	685.97	27,789.35
November	3,664.56	3,597.40	12,017.22	13,760.21	33,039.19
December	3,939.01	9,763.63	6,195.61	10,339.92	30,238.17
1932—					
January	2,751.66	5,697.50	14,039.63	5,179.90	27,668.69
February	2,343.09	7,607.24	4,452.37	6,802.54	21,205.24
March	2,801.37	6,687.35	5,536.51	8,053.68	23,078.91
TOTAL	$38,656.03	$130,906.50	$104,076.18	$ 60,041.24	$333,679.95

These revenues comprise royalties and rental on coal, petroleum and natural gas leases, rental grazing leases, fees covering quartz and placer claims, homestead fees, payment for the issue of grazing

and cultivation permits on school lands and business of a similar nature.

Logging and lumbering operations were very much curtailed owing to the continued depressed financial conditions of the country. An especially large reduction was found in the manufacture of railway ties, owing to the limited number of ties being required by railway companies in connection with their operations.

The following statement shows the products manufactured by the holders of timber berths under yearly licenses and permits:

	License Berths	Permit Berths	School Lands Berths
Board measure lumber manufactured	24,741,905	11,432,530	1,454,022
Railway ties	1,754	132,740	.....
Lineal feet piling	.....	2,736	.....
Lath	.....	1,757,000	.....
Mine timber, feet	.....	352,468	.....
Lineal feet logs	.....	3,496	.....

A total of 1,128 miscellaneous permits was issued authorizing the cutting of timber on provincial lands; 82 permits issued authorizing the cutting of timber on school lands. The quantity of timber authorized to be cut under these permits together with the quantity shown as having been cut thereunder is as follows:

	Provincial Lands		School Lands	
	Amount authorized	Amount cut	Amount authorized	Amount cut
Feet, board measure	6,888,078	1,856,624	586,000	465,105
Lineal feet	260,590	138,861	5,248	.....
Fence rails	1,269,545	8,450	910	270
Roof poles	273,530	3,577	90	.....
Fence posts	312,120	31,330	2,050	1,000
Cords cordwood	1,760	555	301	180
Railway ties	72,468	71,507	9,400	4,105
Telegraph and telephone poles	1,245	1,054	.....	.....
Lineal feet mining timber	70,525	59,383	5,000	.....

Sixty-two seizures were made of timber cut from provincial lands and 9 seizures of timber cut from school lands, as follows:

	Provincial Lands	School Lands
Amount of timber covered thereby:		
Lineal feet logs	186,692	64,376
Lumber, board measure	3,249,441	45,752
Mine timber, lineal feet	30,333	.....
Fence posts	954	785
Ties	7,112	.....
Lath	15,000	.....
Cordwood	14 cords	.....

In connection with the matter of hay, 455 permits were issued on provincial lands, authorizing the cutting of 4,049 tons and under authority of which 2,611 tons were cut. On school lands 206 permits were issued, authorizing a total cut of 1,237 tons, in connection with which 866 tons were reported as having been cut.

Four seizures were made, covering a total of 60 tons of hay cut in trespass.

REPORT OF THE CALGARY LAND AGENT, M. GOSSIP

In spite of the continuance of the depression over the past year, the business of the Calgary office has been fairly well maintained, and a considerable revenue has been collected.

In addition to the collection of ordinary revenue and the transaction of business of a routine nature, the following is a statement of the business handled in the Agency during the period in question:

Homestead entries granted	117
Soldier entries granted	3
Applications for grazing leases received and checked	97
Applications for petroleum and natural gas leases	28
Applications for petroleum and natural gas permits	5
Applications for coal leases	20
Quartz claims granted	48
Placer claims granted	37
Cultivation permits issued	18
Grazing permits issued on school lands	905
Grazing permits issued on provincial lands	27
Timber permits issued	287
Cancellations instituted	257
Applications for patent received	52

The revenue received at this office during the year amounted to $310,024.96, of which $307,327.38 was applied as shown under the different headings of the following statement, viz.:

Month	Lands	Timber and Grazing	Mining Lands	School Lands	Bank Interest	Tax Recovery	Total
1931—							
April	$ 306.87	$ 2,111.23	$ 33,891.87	$ 6,342.91	.....	.....	$ 42,652.88
May	14.95	4,418.44	18,356.23	1,104.96	$186.75	.....	24,081.33
June	476.10	1,794.95	16,032.35	1,578.07	.....	.....	19,881.47
July	402.96	4,295.35	22,924.17	1,312.51	.....	.....	28,934.98
August	681.15	4,822.25	15,008.13	599.67	.....	.....	21,111.20
September	451.45	1,624.99	13,195.71	541.21	.....	.....	15,813.36
October	312.55	3,001.98	16,267.36	1,684.43	.....	.....	21,266.32
November	143.06	2,757.94	18,948.89	651.50	120.32	.....	22,621.71
December	235.90	1,621.89	10,834.12	917.80	.....	.....	13,609.71
1932—							
January	183.15	1,755.94	24,270.83	328.47	.....	.....	26,538.39
February	89.34	1,424.38	16,786.01	4,057.50	.....	$ 62.00	22,419.23
March	152.27	2,162.93	37,721.21	8,194.14	.....	166.25	48,396.80
TOTAL	$3,449.74	$31,792.27	$244,236.88	$27,313.17	$307.07	$228.25	$307,327.38

Among the items making up the above revenue, were royalties on petroleum and natural gas amounting to $124,665.05, royalties on coal amounting to $56,884.94 and royalties on timber amounting to $12,575.64, besides payments made on account of grazing rentals, fees covering quartz and placer claims, homestead fees, payments for the issue of grazing and cultivation permits on school lands as well as other business of a miscellaneous nature.

Practically no collections were made at this office of amounts owing in respect of pre-emptions, purchased homesteads or general sales and very few, if any, amounts were collected on account of school lands sales.

It is estimated that sales of naphtha and crude oils from wells operating on provincial lands in this district amounted during the period to 663,348 barrels, which realized a total of $1,952,768.99.

From figures prepared in this office it is observed that there are 220 coal sales comprising an area of 49,810 acres and 287 coal-mining leases comprising an area of 104,028 acres in force in this district which produced a total of 1,267,063 tons mined from provincial lands during the year. There are 89 operating leases in the district. In addition to the leases, 12 permits were issued to settlers

to mine coal for domestic purposes, and 115 tons of coal were mined under authority thereon.

It will be noted that a number of placer and quartz claims were granted during the year. These chiefly covered a portion of the district situated at the head waters of the Fallen Timber Creek in Township 29, Range 9, West of the 5th Meridian, and at the time the entries were filed, considerable interest was created. No reports have yet been received as to whether or not the expectations of the locators have been realized.

Owing to financial conditions, timber operations in this district were practically brought to a standstill during the year, and there would appear to be very little prospect of any improvement in the near future.

Sales which have taken place, however, have very materially reduced the supply of native stock on hand, and a change in the financial condition would not only be reflected in a greater demand for lumber, but also in a general replacement of stock now reduced.

	Provincial Lands	School Lands
Timber permits	251	30
Feet board measure	226,500	14,000
Lineal feet building logs	23,406	1,400
Fence rails	13,950	350
Roof poles	3,635	100
Fence posts	6,080	1,100
Cords cordwood	1,584	170
Railway ties	9,015	.....
Telegraph and telephone poles	5,400	.....
Lineal feet mining timber	.....	.....
M. shingles	.....	.....
Cords shingle bolts	.....	.....
M. laths	.....	.....
Cords pulpwood	.....	.....

TIMBER SEIZURES

	Provincial Lands	School Lands
Number	29	8
Amount of timber covered thereby:		
Board measure lumber	247,523	87,912
Mine timber lineal feet	56,766	.....
Building logs	173,678	795 logs
Railway ties	4,441	.....
Fence posts	4,239	367
Telephone poles, thirty feet	1,790	.....
Roof poles	150	.....
Laths	62,500	.....
Cords cordwood	11½	12

HAY PERMITS

	Provincial Lands	School Lands
Number	58 permits	25 permits
Tons of hay	1,078½ tons	158 tons

TIMBER PRODUCTS MANUFACTURED BY HOLDERS OF TIMBER BERTHS UNDER YEARLY LICENSE AND PERMIT DURING THE YEAR ENDING MARCH 31st, 1932

	License Berths	Permit Berths
Board measure lumber manufactured	256,907	130,728
Board measure lumber sold	7,489,452	253,076
Railway ties	2,880	347
Lineal feet round timber	.....	.....
Saw logs cut	2,070	2,000
Laths	83,900	.....
Shingle bolts	.....	.....
M. shingles	.....	.....
Fence posts	.....	.....
Cords cordwood	70	.....
Slabs	64	.....
Cords pulpwood	.....	.....
Mine props	202,582	9,000
Mine plank	67,221	4,000

REPORT OF THE LETHBRIDGE LAND AGENT, R. CRUICKSHANK

The business of this office was naturally affected by the world-wide economic situation during the past fiscal year, yet a large volume of work was performed and considerable revenue received.

The following statements give the classifications and quantity of business performed:

216 petroleum and natural gas leases.
9 miscellaneous leases.
106 coal–mining leases covering 21,881 acres.
12 coal–mining berths covering 3,442 acres.
5 quarrying leases.
14 quartz claims.
1,686 grazing leases covering 2,196,857 acres.
1 timber berth covering 50 square miles.

The above statement does not include outstanding applications for inspection, unpatented homestead entries or matters of a similar nature outstanding at this date.

Other business during the period of this report may be outlined as follows:

Homestead entries granted	30
Applications for patents received	86
Number of applications for cancellation received	22
Number of entries cancelled	26
Applications for petroleum and natural gas	162
Applications for coal–mining leases	9
Applications for fur–farming	1
Applications for dredging	1
Grazing leases issued by the Department of Municipal Affairs and now administered by this Department	78
Crop leases issued by the Department of Municipal Affairs and now administered by this Department	230
Prvoincial lands grazing permits issued by the Department of Municipal Affairs and now administered by this Department	330
Provincial lands grazing permits covering 240 acres	2
School lands grazing permits covering 179,890 acres	407
School lands cultivation permits covering 1,375 acres	15
Gravel permits	11
Domestic coal permits	34
Provincial lands hay permits	7
School lands hay permits	2
Provincial lands timber permits	7
Timber seizures on provincial lands	1
Production of naphtha and crude oil, barrels	57,684
Portable sawmill berths	1

The different classes of revenue received were applied under the following headings and are shown in monthly distribution:

Month 1931—	Lands	Timber and Grazing	Mining Lands	School Lands	Seed Grain Repay–ments	Tax Re–covery Lands	Total
April	$ 2.50	$ 2,332.96	$15,761.84	$ 3,696.73	.....	.....	$ 21,794.03
May	27.75	1,878.87	13,399.45	2,075.69	$ 32.45	.....	17,414.21
June	8.80	3,150.45	5,169.08	914.67	.....	.....	9,243.00
July	282.25	2,896.44	14,914.73	1,621.49	.....	.....	19,714.91
August	100.35	2,729.91	2,973.89	362.39	.....	.....	6,166.54
September	173.25	2,909.60	2,705.70	1,474.93	.....	.....	7,263.48
October	811.23	2,991.95	15,588.46	1,285.94	.....	.....	20,677.58
November	283.80	1,407.09	2,510.86	781.18	.....	.....	4,982.93
December	272.51	1,166.53	1,105.99	477.00	.....	.....	3,022.03
1932—							
January	52.00	866.68	13,691.51	1,503.25	.....	$ 511.23	16,624.67
February	185.14	1,030.36	3,533.53	262.98	.....	.....	5,012.01
March	3.80	887.05	3,753.71	2,710.75	.....	1,428.36	8,783.67
TOTAL	$2,203.38	$24,247.89	$95,108.75	$17,167.00	$ 32.45	$1,939.59	$140,699.06

TIMBER AND HAY PERMITS, TIMBER SEIZURES

	Provincial Lands	School Lands
Timber permits issued	7	....

Cords cordwood, 21.

TIMBER SEIZURES

	Provincial Lands	School Lands
54 poles	1	....

HAY PERMITS

	Provincial Lands	School Lands
Number of tons of hay, 68	7	....
Number of tons of hay, 31	....	2

REPORT OF THE PEACE RIVER LAND AGENT, A. B. SPENCE

The business of this office for the year ending March 31st, 1932, while showing a decrease in revenue from the preceding year, also shows a marked increase in some branches of the work.

The following statement gives a general idea of the business in force as at March 31st, 1931:

74 petroleum and natural gas leases and berths covering approximately 26,709.60 acres.
8 quarrying leases.
1 domestic coal permit.
195 grazing leases, covering 71,919.40 acres.
209 time–sales and school lands sales.
9 license timber berths.
10 portable saw–mill berths.
1 cordwood berth.
2 fire–killed berths.
19 custom saw–mill permits.

This statement does not include the number of unpatented entries, applications for inspection outstanding, cultivation, grazing, hay and timber permits outstanding or other matters of a miscellaneous nature outstanding at the date in question.

During the period covered by this report the following business has been handled in addition to the collection of ordinary revenue and the transaction of business of a routine nature:

Homestead entries granted	972
Second homesteads	65
Soldier grants	5
Application for grazing leases	30
Grazing permits issued, school lands	74
Grazing permits issued, provincial lands	4
Timber permits issued	790
Applications for patents received	317
Patents recommended	233
Application for cancellation (from individuals)	389
Application for cancellation (head office and school districts)	137
Entries cancelled	704
Lands cancelled	49
Applications, permit berths, provincial lands	6
Timber berths, Dominion lands	19
Custom saw–mills	23
Coal leases	1
Domestic coal permits	1

Considering that homestead entries were discontinued from February 14th to July 2nd and that subsequent to July 2nd they were available only to those applicants who had been resident in the Province for the specified period prior to application, with the fee increased from $10.00 to $50.00, the number received has been satisfactory.

Since July 2nd, 498 women have made entry, which is almost half the total number filed.

Timber permits during the period of this report more than doubled those of last year, and applications for patent received exceeded any previous year.

The following statement shows the different classes of revenue received during the twelve months in question:

Month	Lands	Timber and Grazing	Mining Lands	School Lands	Fur Farming	Tax Re-covery	Total
1931—							
April	$ 323.85	$ 720.86	$ 82.75	$239.47	.....	.....	$ 1,366.93
May	60.00	223.19	.....	60.91	.....	.....	344.10
June	235.10	231.40	5.00	24.00	.....	.....	495.50
July	3,167.95	332.93	5.00	60.67	$25.00	.....	3,591.55
August	2,559.15	256.42	50.00	15.25	.....	.....	2,880.82
September	1,907.67	475.41	5.00	54.00	.....	.....	2,442.08
October	1,288.25	344.30	5.00	12.15	.....	.....	1,649.70
November	1,691.94	431.43	2.00	5.80	.....	.....	2,131.17
December	797.25	357.89	.....	14.16	.....	.....	1,169.30
1932—							
January	1,281.17	375.23	58.45	74.72	.....	.....	1,789.57
February	546.85	416.22	1.90	81.47	.....	$20.00	1,066.44
March	830.35	721.84	32.75	321.52	.....	4.76	1,911.22
TOTAL	$14,689.53	$4,887.12	$247.85	$964.12	$25.00	$24.76	$20,838.38

The above revenue is made up of rentals on petroleum and natural gas leases, rentals on grazing leases, homestead fees, payments on grazing permits, hay permits, timber permits, and other business of a miscellaneous nature. All revenue in connection with timber berths and considerable revenue in connection with petroleum and quarrying leases and school lands sales have been collected at the head office and are not shown in this statement.

Collections have again been poor, but by following up a persistent correspondence many outstanding rentals and timber excesses have been paid.

There has been no petroleum and natural gas development during the past year. One company has, however, made a substantial payment on account of rental and two other companies have expressed their eagerness to recommence operations as soon as conditions improve. The drilling of three wells for the purpose of supplying the town of Peace River with gas is to commence this summer.

Due to the absence of inspectors from their various fields throughout the greater portion of the winter, there were 111 reports outstanding at the end of March.

This factor, while somewhat retarding the work, avoided, on the other hand, the heavy expense which would have occurred had inspections been attempted during a winter of exceptionally heavy snowfall, which blocked the roads and made travelling extremely difficult.

During the period of this report a franchise option was passed by the town of Peace River for the introduction of natural gas to the community. The franchise was granted to Lethbridge interests, which have been endeavouring to obtain the necessary financial assistance for the drilling of wells and the expense of the distributing system. The materialization of this project will mean considerable encouragement to industrial development in the community.

	Provincial Lands	School Lands
Timber permits	782	8
Feet board measure	3,990,060	12,910
Lineal feet building logs	518,838	13,800
Fence rails	1,272,371	12,000
Roof poles	240,143	2,300
Fence posts	279,155	2,900
Cordwood	8,521	90
Railroad ties	990	.....
Piling, lineal feet	16,093	.....

TIMBER SEIZURES

	Provincial Lands	School Lands
Number	2	.....
Account of timber covered thereby	3,200 lineal feet, building logs 6 cords wood	

HAY PERMITS

	Provincial Lands	School Lands
Number	126	22
Tons of hay	1,180	234
Hay seizures	.....	1
Tons of hay	.....	35

REPORT OF THE GRANDE PRAIRIE LAND AGENT, J. J. E. CLARKE

The business of this office during the period of this report was no doubt affected by the large amount of unemployment together with the many handicaps caused by general financial depression. The amount of work which was performed, however, showed a large increase in various branches which resulted in a substantial revenue.

A general idea of the type and amount of work which was handled is shown in the following statement which gives classification and volume of business in force as at April 1st, 1931:

	Acres
3 petroleum and natural gas leases covering	260
7 coal–mining leases covering	190
1 quartz mining claim covering	160
97 grazing leases covering	36,300.4
183 general sales covering	26,175.60
32 grazing permits, school lands, covering	7,659.74

The number of unpatented homestead entries, applications for inspection outstanding and other miscellaneous items are not included in the above statement, to which may be added applications for cancellation proceedings pending now dealt with at this office.

During the period covered by this report the following business was handled in addition to the collection of revenue and other business of a miscellaneous nature:

Homestead entries	485
Soldier grant entries	3
Applications for grazing received and checked	7
Application, fur farm lease	1
Application, coal–mining rights	1
Certificate of work issued	1
Grazing permits issued	73
Timber permits issued	641
Hay permits issued	113
Applications for patents received	200
Applications for cancellation received	330
Entries cancelled	310

The following is a statement showing the different classes of revenue received during the period covered by this report:

Month	Lands	Timber and Grazing	Mining Lands	School Lands	Fur Farms	Total
1931—						
April	$ 105.90	$ 150.08	$ 24.30	$ 162.56	.....	$ 442.84
May	25.80	241.77	3.00	996.74	.....	1,267.31
June	43.50	174.61	.....	27.80	.....	245.91
July	2,264.45	395.19	1.45	438.95	.....	3,100.04
August	1,430.35	186.15	.....	836.18	.....	2,452.68
September	1,121.50	62.39	.....	2.25	.....	1,186.14
October	1,024.65	144.56	51.00	203.13	.....	1,423.34
November	1,359.40	180.31	.....	19.90	.....	1,559.61
December	667.50	239.74	.....	354.40	$ 75.00	1,336.64
1932—						
January	659.60	516.00	94.15	1,147.65	25.00	2,442.40
February	378.60	615.34	60.00	93.24	.....	1,147.18
March	889.55	761.09	26.09	505.77	75.00	2,257.50
TOTAL	$9,970.80	$3,667.23	$259.99	$4,788.57	$175.00	$18,861.59

This revenue is made up of homestead entry fees, payments for improvements, land sales, timber permits, hay permits, excess dues, grazing rentals, mining rentals, royalties and other revenue of a miscellaneous nature.

As the prices received for grain and other farm products during the fiscal year have been so small, payments in respect of both general lands sales and school lands sales were negligible in comparison with the amount owing. Until prices show an upward trend there is no great hope of collecting amounts now past due to any large extent.

Owing to the severity of the past winter and heavy snowfall, there was a very large increase in the number of timber permits issued, included in which were quite a number of permits for firewood to woodyards and town residents. It will be seen that 641 permits were issued, being the most for a number of years and only one below the greatest number ever issued by this office in any one year. This branch of the work is expected to increase as the public continues to realize the necessity of taking out permits.

The demand for local coal is still increasing. Although returns from two mines for the last quarter are still outstanding, those received show 1,610 tons mined as against 979 tons last season. When all returns are received it is expected that they will show a total of close to 2,000 tons. The coal mined along the Wapiti River is of a very good quality and compares favourably with coal shipped in from outside points and sold at a higher price.

It will be observed that a large number of applications for cancellation were received, a great many of which were from wives and daughters of farmers in the vicinity of the lands covered thereby.

The fee of $2.00 charged on each application for cancellation, which was put into force on February 1st, 1932, will assist in building up the revenue of this office in the future. Considerable care and attention has been given to the proceedings instituted by these applications which have been dealt with entirely by this office.

	Provincial Lands	School Lands
Timber permits issued	632	9
Feet board measure	2,757,906	20,000
Lineal feet	354,875	.....
Fence rails	808,921	.....
Roof poles	159,646	.....
Fence posts	183,170	.....
Cords cordwood	3,277	31

TIMBER SEIZURES

	Provincial Lands	School Lands
Number	1	.....
Amount of timber covered thereby	25 cords dry wood	

HAY PERMITS

	Provincial Lands	School Lands
Number of tons of hay	564 tons	205 tons
	86 permits	27 permits

Petroleum and Natural Gas

REPORT OF THE DIRECTOR OF PETROLEUM AND NATURAL GAS, W. CALDER

To control the development and production of Petroleum and Natural Gas, the Dominion Government promulgated in 1901 regulations relating to the prospecting and development of these minerals. Later and during 1922 the regulations were revised and added to, the additions being found necessary in accordance with improved oil and gas development technique.

Unfortunately, the Dominion control regulations could not be enforced on any lands granted as subsidy or on the short form of patent and any recognition of these regulations by prospectors and operators with respect to these particular lands has been therefore a matter of purely voluntary co-operation.

By the transfer to Alberta, in 1930, of all land and natural resources, Dominion rights ceased and their regulations became ineffective, making it necessary for this Province to create a supervisory staff and promulgate regulations. The transfer of all rights to the Province of Alberta actually took place on the first of October, 1930, but some months elapsed before the necessary provincial organization was created.

Activities were at first considerably handicapped on account of the delay in receiving records from the Dominion Government. This applied particularly to the new Petroleum and Natural Gas Division which, although organized as a provincial organization at the beginning of February, did not receive any file records until the end of March. These files had to be rearranged and the contents dissected for provincial administrative needs, which necessitated considerably intensive work and was only completed towards the end of the calendar year.

The head office of the Petroleum and Natural Gas Division is centred in Edmonton and was started with a staff of eight, which included the director. At this office, records of all drilling operations, oil and gas production statements and other contributory data are received, checked and recorded for statistical and other requirements. A further internal duty and one of the greatest importance is the examination of all geological samples recovered during the drilling of wells; such samples have to be carefully washed, dried and examined under the microscope, the findings being recorded for correlation and comparison purposes. During the year, 9,159 samples were examined and the results made available to the individual and interested operators.

Special visits were made to many of the locations of abandoned wells. In particular a careful survey was undertaken in the Peace River area and at all sites where drilling had been done in proximity to the Edmonton-Peace River road. During the year a total of 1,801 inspections was carried out by the members of the different offices. Of these, 842 were special cases arising from water

shut-off tests or the necessity of controlling faulty drilling work. The majority of the inspections were made in the vicinity of Calgary, where the greatest number of operating wells in the Province are located. The other inspections totalled 363, but as these were all in locations widely separated and in different and frequently remote parts of the Province, considerably more time was taken to inspect this small number than was necessary for those in the Calgary district.

At headquarters, over and above the examination of samples and the rearrangement of records, the staff prepared a complete schedule of all wells drilled in the Province respecting which authentic data could be obtained. The publication is now availabale for issue to all *bona fide* operators and as it includes summarized geological and other information should undoubtedly prove of great assistance in future operations.

There was also prepared a peg model of the Turner Valley area showing all sub-surface geological details and giving to scale for the first time in practical and convincing form the exact conditions underground as disclosed from the examination of strata samples recovered during the drilling of wells.

The occasion is opportune to detail the necessity of a Government control over all oil and gas operations in the Province. Up to the end of 1926 close on 500 wells were drilled, many of these at widely separated points, within the limits of the Province. The data on record relating to the majority of these tests is very scant, but in most cases oil and gas indications are recorded as having been noticed during the drilling. Discounting many of these reported indications as insignificant and possibly in some cases questionable, there still would remain a large number which might have led to the development of commercial fields.

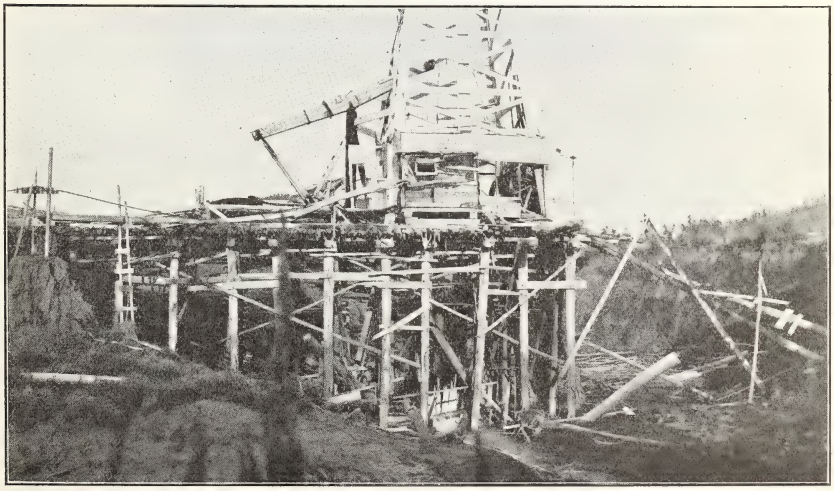
Prior to 1926, close Government supervision of this important branch or division of the natural resources had not long been instituted, with the result that many of the prospecting wells, above cited, were drilled in a water-logged condition. Water is the greatest enemy to the efficient development of oil and gas and when not controlled invariably forces back into the formation any oil and gas that may be discovered. To prevent inundation of potential productive strata, it is therefore essential that all water encountered in drilling be completely isolated from the wells. To accomplish this, metal casing is inserted and cemented below the water horizon and as each size or column of casing extends to the surface the water cannot find entrance to the well other than through a defect in such casing.

It is an anomaly, but nevertheless true, that oil and gas well operators, not only in Canada, but elsewhere, have in the past been very much opposed to the cementing of casings and where there was no supervision have invariably drilled their wells in a water-logged condition, a procedure which must have, in many cases, resulted in the passing by of small but remunerative production. The reason for this opposition to isolating water was no doubt inspired with the hope of keeping down the capital expenditure, but when it is considered that the cost of cementation rarely exceeds $500.00 per well, the amount is insignificant when compared with the total expenditure that may be at stake in the drilling of the well.

The present moribund condition in the Wainwright district is a good example of the damage that may be done to a promising area by faulty engineering practice. In this field, before the regulations were rigidly enforced, it was the practice of operators to drill to the oil horizon with a minimum amount of casing and no efficient cementation. This resulted in the majority of the wells in the area showing an excessive amount of water which had to be removed with the oil from the well. The oil in the latest wells drilled under Government specification and supervision is practically water free, and proves definitely that the mid-Alberta heavy crude oil areas can be relied on to produce crude oil free from water.

Another example within the Province is the Medicine Hat gas field, where in 1927 all of the gas-producing wells showed excessive quantities of water, the general opinion then being that the latter was encroaching water due to the gas depletion. This pessimistic view, however, was not accepted by the Government supervising engineers, who held to the opinion that the water was solely due to leakage downwards of sub-surface water through defective casing and owing to the lack of cementation when the wells were drilled. Unfortunately, the official suggestions for rehabilitating some of the worst wells met with considerable local opposition, but eventually the owner of a private defective well carried out repairs outlined by the Government engineers. This experiment proving successful, other wells were repaired, and as the results were equally satisfactory, the evidence of dry wells today which formerly carried excessive quantities of water has definitely contradicted the suggestion of water encroachment and undoubtedly resulted in prolonging the useful productive life of the Medicine Hat gas wells.

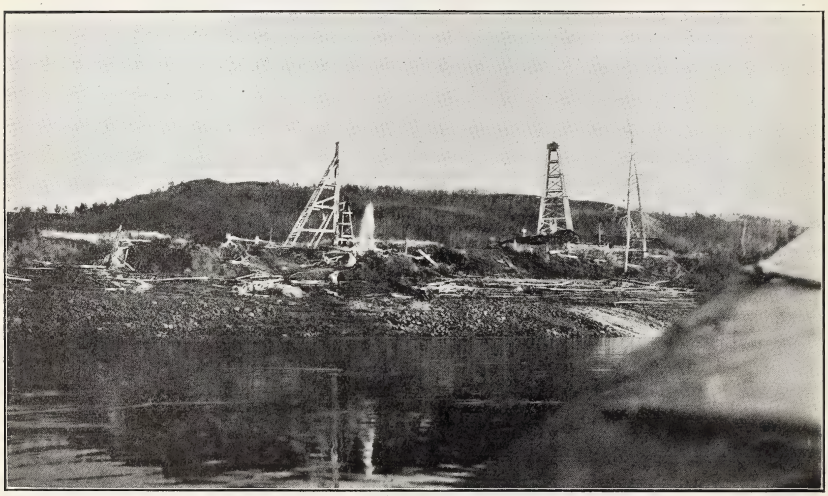
An outstanding example of inefficient development will be noted in the following photographs of abandoned derelict wells, drilled at different points on the Peace River.



PEACE RIVER

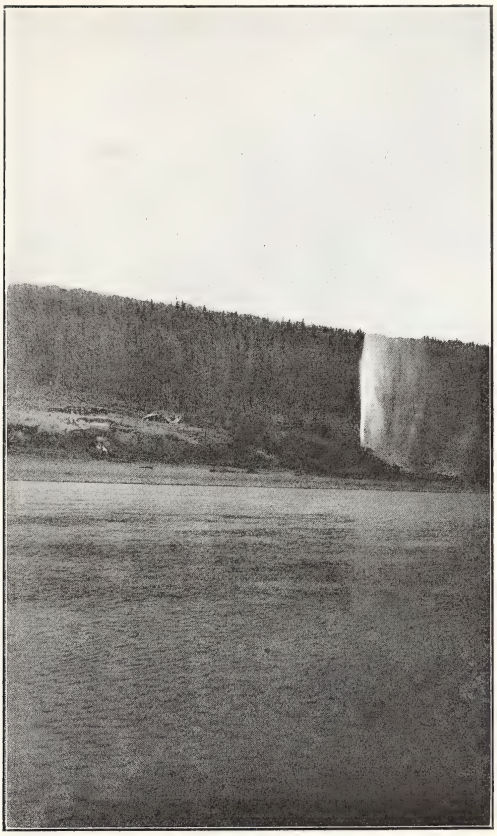
Abandoned well flowing a considerable amount of water. Site formerly level with the top of bank but washed away by uncontrolled water flowing from well, which necessitated the underpinning of derrick.

These all amply confirm the necessity of an experienced government supervision. The records show that in all of the wells oil and gas was encountered in varying quantity, but owing to the surface water not having been properly excluded from the wells, also the latter being drilled too deeply without necessary cementation of casings, there is now a whole series of wells flowing water, oil and gas, where, had the prospecting been done under a competent and strict supervision, there would possibly have been toda in operation a vast number of productive oil wells.



PEACE RIVER

Both of these wells flowing a considerable amount of water with a little oil.



PEACE RIVER

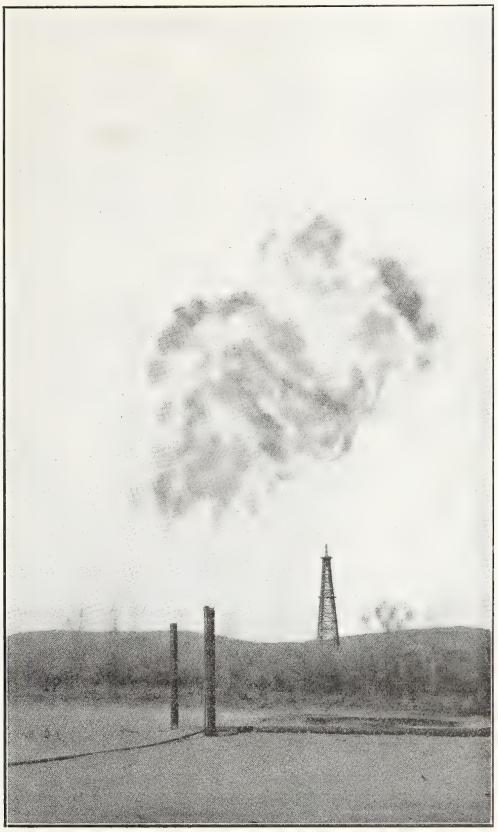
Thirty–mile well. Adjoining this is a second well not under control. In the Peace River area there is a total of eleven abandoned wells from which water, oil and gas are flowing.

The danger of damage from surface water in the Turner Valley, although not great, would nevertheless have had a serious effect on the development of that area had not the Dominion Government, through the Department of the Interior, installed in Calgary a supervisory staff which strictly controlled all wells and compelled operators to cement off the surface water. It is greatly to be regretted that the powers of this staff were limited and could not be extended to the control of gas wastage.

The number of waste gas flares burning continuously in the Turner Valley has averaged between seventy and eighty.

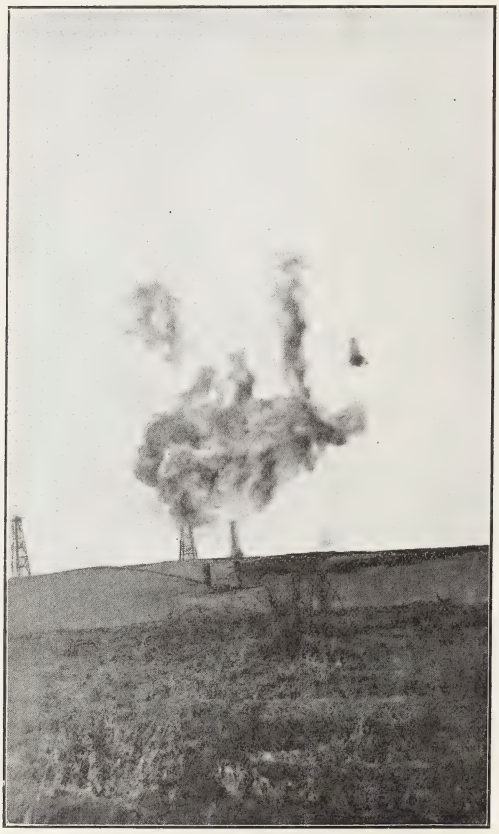
TURNER VALLEY
Waste gas flare at British Dominion lease; height of flare pipe, sixteen feet.

The included representative photographs of flares are sufficient evidence to justify the demand for conservation.



TURNER VALLEY
New McDougall–Segur lease. Waste flare standpipe, twelve feet.

The photographs show the cause of the vivid red reflection seen in the sky at night-time at points as far as one hundred and fifty miles from the scene of the various burning flares.



TURNER VALLEY
Waste flare at Wellington lease. Quantity of gas destroyed daily, twenty million cubic feet.

Oil and gas being migratory minerals and encountered under varying pressures—mostly very high when first discovered—would, if subject to uncontrolled development, soon be dissipated and irretrievably lost by careless development. The aforementioned Dominion regulations being ineffective on non-Crown lands, permitted Turner Valley operators on alienated lands full liberty to carry on uncontrolled development by drilling wells on their lease boundaries. This procedure compelled the lease-owner of adjoining rights to also drill offset wells in order that he should receive some benefit from his equity before it would be all drained by the neighbouring well or wells. It must also be appreciated that this form of development not only created a loss to the lease-owner, but also to the State treasury, as every barrel of oil recovered from alienated land represented and represents a partial loss to the State, no Government royalty assessment being levied on non-Crown lands.

A world outstanding example of this kind of uncontrolled development existed in the Turner Valley area when the Province

took over the natural resources. To deal with the waste gas problem, the Provincial Government, however, was handicapped at the outset owing to a lack of experienced personnel to prepare provincial regulations and compile the necessary data respecting the enormous daily waste that was taking place. Immediately all material was available, the seriousness of the waste was at once appreciated, and the operators were informed without delay at a public meeting of the imperative necessity for a voluntary conservation, and the Government invited a gas engineering specialist from the United States to prepare an agreement which would be equitable to all concerned.

Before an attempt could be made to formulate the agreement, the specialist demanded full information respecting conditions at all wells. To obtain this data it was necessary to close in the wells to learn the exact pressure underground, also an approximation of the total volume of gas which each well was producing. Previous attempts to obtain this information had been vigorously opposed by some operators, their contention being that the underground gas pressure was abnormal, and if the wells should be closed in entirely there was great risk of danger to life and the wells would be irretrievably damaged. However, all the wells were tested by officials of this Division, and it was definitely learned that the well or underground pressure—even in the discovery wells—never has been of such a high order as not to allow of complete closing in.

With definite data, the specialist, in collaboration with two representatives selected by the operators, prepared a draft agreement which was submitted to all interested, but this agreement was not acceptable to some of the interests in the field. Endeavours, however, were continued in the hope that all concerned would come to a voluntary understanding and obviate the necessity of legislation. These endeavours, unfortunately, did not materialize, and after a prolonged hearing the Legislature promulgated legislation for a Control Board to reduce the waste of gas to 200,000,000 cubic feet per day and eventually to 100,000,000, the latter being the considered estimate of the maximum demand through the present available pipe line facilities.

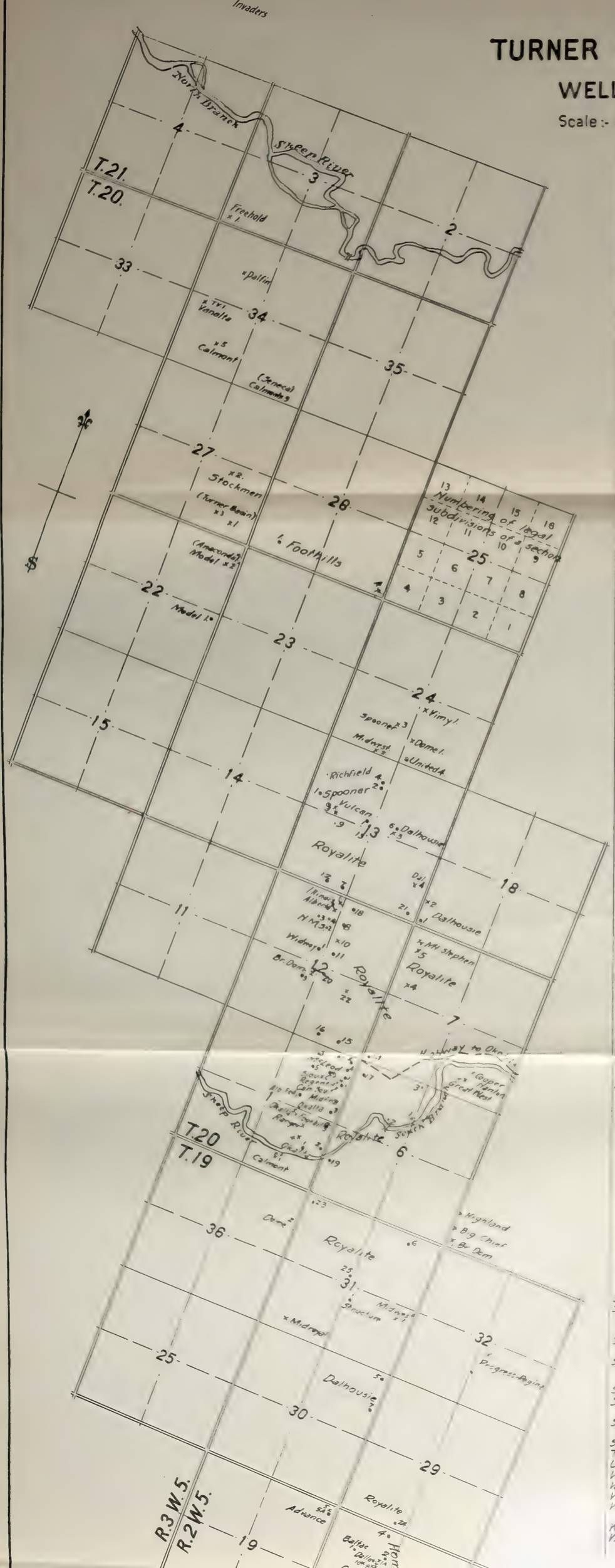
Basing the annual total provincial gas requirements at 18.3 billion cubic feet and the estimate waste during the period 1st of October, 1930, to the end of March, 1932, as amounting to 230 billion cubic feet, there has been dissipated, during the short period since the Province assumed control of the natural resources, a quantity of gas based on present requirements sufficient for all needs in the Province for a period of twelve and a half years. At the 1st of October, 1930, the daily waste amounted to 448 million cubic feet, and reached a maximum of 562 million cubic feet during June, 1931; since then the quantity has dropped to 344 million cubic feet per day.

A very important and significant feature in the development of the Turner Valley has apparently at all times been ignored by the majority of operators and others interested in that area. This refers particularly to the shutting off of crude oil, which is found in three different horizons at depths very much shallower than that where the naphtha carrying gas is met in the limestone. These crude oil-bearing sands have been noted in the examinations of strata samples from all wells on structure, and it is further well

TURNER VALLEY FIELD

WELL LOCATIONS

Scale :- 2 Inches to 1 Mile



COMPANY	WELL	Ls Sec To R. W.5
Advance	5, 5A	16 of 19, 19 - 2
Alberta Federated	1	16 of 1, 20 - 3
Alberta Pac Consol	1, 2	5 of 20, 19 - 2
Anaconda (Model)	2	16 of 22, 20 - 3
Associated	1, 2	6 of 20, 19 - 2
Baltac	1	13 of 20, 19 - 2
Big Chief	1	4 of 5, 20 - 2
British Dominion	1	4 of 5, 20 - 2
" "	2, 3	6 of 12, 20 - 3
Calmont	1, 3	2 of 1, 20 - 3
"	2, 4, 6, 7, 8, 10, 11	of 20, 19 - 2
"	5	3 of 34, 20 - 3
" (Seneca 1)	9	1 of 34, 20 - 3
Canada Southern	1	9 of 1, 20 - 3
Commonwealth	1	7 of 9, 19 - 2
Cooper - Nanton	1	1 of 7, 20 - 2
Dalfin	1	12 of 34, 20 - 3
Dalhousie	1, 2	4 of 18, 20 - 2
"	3, 6	10 of 13, 20 - 3
"	4	8 of 13, 20 - 3
"	5	16 of 30, 19 - 2
"	7	9 of 30, 19 - 2
Dallas	1	11 of 26, 19 - 2
Dome	1	2 of 24, 20 - 3
"	2	8 of 36, 19 - 3
East Crest	1	5 of 16, 19 - 2
"	2, 2A, 3	4 of 16, 19 - 2
Foothills	1	4 of 26, 20 - 3
"	2	8 of 1, 20 - 3
" 3 (Southwest)	1)	16 of 8, 19 - 2
"	4	1 of 26, 20 - 3
Freehold	1	4 of 3, 21 - 3
"	2, 3	8 of 20, 19 - 2
" (Mar Jon)	4	9 of 28, 18 - 2
Great West	1	2 of 7, 20 - 2
Hargal	1	10 of 20, 19 - 2
Highland	1	5 of 5, 20 - 2
Home	1, 3	10 of 20, 19 - 2
"	2, 14, 4	14 of 20, 19 - 2
"	5	7 of 20, 19 - 2
"	6	2 of 20, 19 - 2
"	7	1 of 20, 19 - 2
Homestead	1	5 of 16, 19 - 2
Hylo	1	12 of 4, 19 - 2
Illinois Alberta	1, 2	14 of 12, 20 - 3
Invaders	1	10 of 9, 21 - 3
Livingston	1	5 of 34, 18 - 2
Lowery	1	14 of 17, 19 - 2
"	2	11 of 17, 19 - 2
Mayland	1	10 of 17, 19 - 2
"	2	8 of 17, 19 - 2
"	3	2 of 17, 19 - 2
"	4	16 of 17, 19 - 2
"	6	1 of 17, 19 - 2
McDougall - Segur (Old)	1	SE 16, 21 - 3
McLeod	1, 2, 4	16 of 1, 20 - 3
"	3, 5	15 of 1, 20 - 3
Marcury	1	13 of 4, 19 - 2
"	2	11 of 4, 19 - 2
"	3, 5, 7	2 of 4, 19 - 2
"	6	12 of 4, 19 - 2
Merland	1	13 of 27, 18 - 2
Midfield	1	9 of 1, 20 - 3
Mid Royal	1	4 of 31, 19 - 2
Midwest (Western Pac)	1	8 of 31, 19 - 2
" (Northwest Pac)	2	3 of 24, 20 - 3
Mill City	1A	14 of 4, 19 - 2
Miracle	1, 3	11 of 4, 19 - 2
"	2	16 of 8, 19 - 2
Model	1	8 of 27, 20 - 3
" (Anaconda)	2	16 of 27, 20 - 3
Mount Stephen	2, 3	13 of 7, 20 - 2
New McDougall Segur	1, 2, 3, 4	14 of 12, 20 - 3
Okalta	1	1 of 1, 20 - 3
"	2, 4	8 of 1, 20 - 3
"	3, 1A	9 of 1, 20 - 3
"	5	7 of 1, 20 - 3
Progress - Regina	1	7 of 32, 19 - 2
Ranger	1	8 of 1, 20 - 3
Record	1	14 of 4, 19 - 2
[illegible]	1, 2, 3	16 of 1, 20 - 3
Richfield	TV.I.	12 of 13, 20 - 3
Royalite	1, 3	14 of 6, 20 - 2
"	2	11 of 6, 20 - 2
"	4	12 of 7, 20 - 2
"	5	13 of 7, 20 - 2
"	6	16 of 31, 19 - 2
"	7, 12	3 of 13, 20 - 3
"	8, 18	13 of 12, 20 - 3
"	9, 13	6 of 13, 20 - 3
"	10, 11	10 of 12, 20 - 3
"	14	4 of 7, 20 - 2
"	15	1 of 12, 20 - 3
"	16	2 of 12, 20 - 3
"	17	13 of 6, 20 - 2
"	19	5 of 6, 20 - 2
"	20	7 of 12, 20 - 3
"	21	1 of 13, 20 - 3
"	22	8 of 12, 20 - 3
"	23	13 of 31, 19 - 2
"	24	3 of 29, 19 - 2
"	25	11 of 31, 19 - 2
Sioux City	1	16 of 1, 20 - 3
Southern Lowery	1	3 of 9, 19 - 2
"	2	13 of 9, 19 - 2
"	3	4 of 9, 19 - 2
Southwest 1 (Foothills 3)		16 of 8, 19 - 2
" 2 "	5)	15 of 8, 19 - 2
Spooner	1	12 of 13, 20 - 3
"	2, 4	4 of 13, 20 - 3
"	3	6 of 24, 20 - 3
Spray	1	9 of 5, 19 - 2
Sterling Pacific	1	15 of 33, 18 - 2
"	2	10 of 33, 18 - 2
Stockmen	1	1 of 27, 20 - 3
"	2	7 of 27, 20 - 3
Structure	1	7 of 31, 19 - 2
Turner Basin (Stockmen 3)		2 of 27, 20 - 3
United	4	2 of 24, 20 - 3
Vanalta	TV.I.	5 of 34, 20 - 3
Vanberta	2 (TV.I.)	5 of 34, 18 - 2
Vimy	1	7 of 24, 20 - 3
Vulcan	1	11 of 13, 20 - 3
"	2, 3	12 of 13, 20 - 3
Wellington	1	1 of 20, 19 - 2
Widney	1	11 of 12, 20 - 3

United	4	2 of 34, 20-3
Vanalta	7 & 1	5 of 34, 20-3
Vanberta	2 (7 & 1)	5 of 34, 18-2
Vimy	1	7 of 24, 20-3
Vulcan	1	11 of 13, 20-1
"	2, 3	12 of 13, 20-1
Wellington	1	1 of 20, 19-2
Widney	1	11 of 12, 20-3

PROVINCE of ALBERTA
Department of Lands and Mines
Petroleum and Natural Gas Division

Edmonton, April 27, 1932.
T. H. Rench

EXHIBIT 1

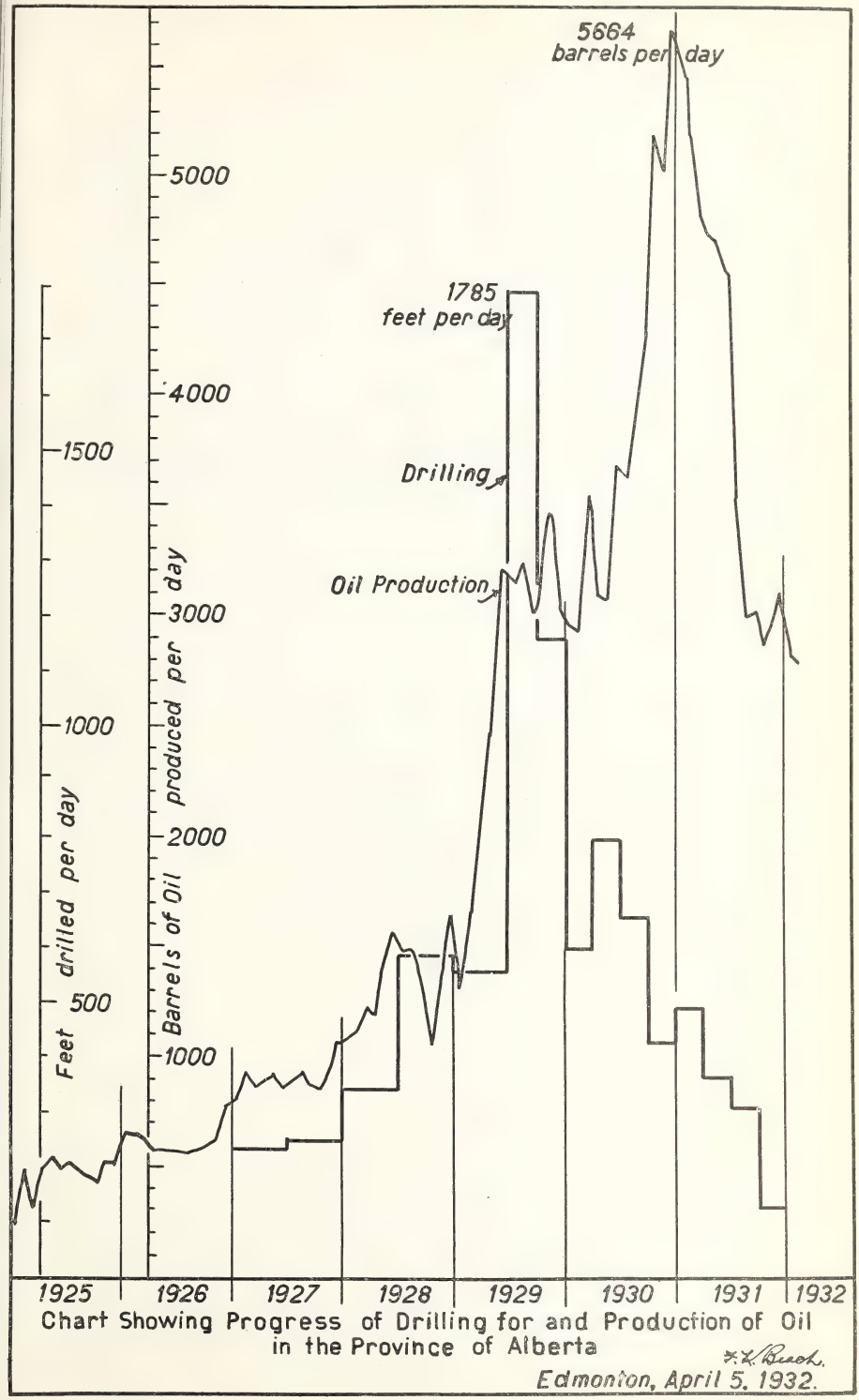


Chart Showing Progress of Drilling for and Production of Oil in the Province of Alberta

H. L. Busch.

Edmonton, April 5, 1932.

EXHIBIT 2

EXHIBIT 3

WELLS DRILLING AND COMPLETED DURING THE FISCAL YEAR 1931–1932

Name	Location	Drilling Started	Drilling Finished	Depth	Remarks
Anaconda	16 of 22–20–3–W. 5th	28– 8–29	.....	3575	Preparing to resume as Model No. 2.
British Dominions 2	6 of 12–20–3–W. 5th	26– 7–28	10– 7–31	5283	Previous completion. Drilled deeper without increase in production.
British Dominions 3	6 of 12–30–3–W. 5th	16– 4–30	2– 5–31	5613	Initial production, 27 barrels per day.
Dome 2	16 of 36–19–3–W. 5th	21– 7–30	18–11–31	5612	Production negligible. Efforts to increase are continuing.
East Crest 3	4 of 16–19–2–W. 5th	27–11–30	9– 5–31	4843	Initial production, 150 barrels per day.
Freehold 2	8 of 20–19–2–W. 5th	22– 6–29	21– 5–31	4477	Previous completion. Drilled deeper without increase in production.
Freehold 4	9 of 28–18–2–W. 5th	9– 4–31	.....	2850	Suspended.
Hylo 1	12 of 4–19–2–W. 5th	11– 7–29	.....	5508	Encountered light crude production, 100 barrels per day, by heads assisted by swabbing, but decided to drill into lime and shut off light crude.
Illinois Alberta 1	14 of 12–20–3–W. 5th	8–14	7–31	3889	Previous completion. Drilled deeper without success.
Livingston 1	5 of 34–18–2–W. 5th	3–12–30	.....	2140	Suspended.
Lowery 2	11 of 17–19–2–W. 5th	24– 7–30	9– 7–31	6584	Abandoned. Negligible production.
Mayland 4	16 of 17–19–2–W. 5th	2–10–30	19– 4–31	2290	Abandoned because of adverse possibilities.
Mayland 6	1 of 17–19–2–W. 5th	20–11–30	13– 5–31	5069	Initial production, 260 barrels per day.
McLeod 1	16 of 1–20–3–W. 5th	10–10–32	.....	3947	Sidetracked casing and ran new producing string.
McLeod 3	15 of 1–20–3–W. 5th	26– 2–27	10–10–31	5245	Previous completion deepened. Small increase in production obtained.
Mercury 6	12 of 4–19–2–W. 5th	10– 3–31	.....	2105	Suspended.
Merland 1	13 of 27–18–2–W. 5th	25– 6–29	19– 5–31	5551	Initial production, 170 barrels per day. Most southerly producer in Turner Valley.
Miracle 2	16 of 5–19–2–W. 5th	21–12–30	.....	5558	Suspended.
Miracle 3	11 of 4–19–2–W. 5th	31– 1–31	25– 2–32	6150	Small production interrupted by fire.
Okalta 1	1 of 1–20–3	2–11–26	18– 8–31	5135	Previous completion. Deepened.
Regent 3	16 of 1–20–3–W. 5th	3– 8–29	.....	4207	Drilling after test for production.
Royalite 4	12 of 7–20–2–W. 5th	7– 9–22	17–10–24	3740	Repairs attempted. Unsuccessful.
Richfield T. V. 1	12 of 13–20–3–W. 5th	5– 9–30	23– 5–31	5070	Initial production, 34 barrels per day.
Southern Lowery 2	13 of 9–19–2–W. 5th	17–12–30	23– 6–31	4796	Initial production, 310 barrels per day.
Southern Lowery 3	4 of 9–19–2–W. 5th	29– 1–31	16– 9–31	5622	Initial production, 180 barrels per day.
Southwest 2	15 of 8–19–2–W. 5th	5–11–30	.....	5407	Abandoned.
Spray 1	9 of 5–19–2–W. 5th	11– 6–29	.....	2330	Preparing to resume.
Sterling Pacific 2	10 of 33–18–2–W. 5th	26– 5–31	27–12–31	5758	Initial production, 270 barrels per day.
United 4	2 of 24–20–3–W. 5th	4– 1–28	14–10–31	6360	Failed to obtain production in limestone. Plugged back to take light crude from Dalhousie Sand.
Vulcan 3	12 of 13–20–3–W. 5th	3– 3–31	10– 7–31	3100	Light crude. Initial production, 16 barrels.
Wellington 1	1 of 20–19–2–W. 5th	19– 6–29	22– 3–32	4982	Previous completion. Drilled deeper with increased production.

RED COULEE FIELD

Dalco 2	7 of 19–2–17–W. 4th	19– 8–30	24– 7–31	3140	Abandoned.
Devonshire 1	4 of 10–1–16–W. 4th	18– 4–30	.....	1930	Suspended. Resumed for a time during year.
Dixie 1A	15 of 7–1–16–W. 4th	2– 6–30	20– 5–31	2587	Suspended.
S.A.X. 2	8 of 3–1–16–W. 4th	1– 4–31	22– 5–31	2410	Abandoned.

RIBSTONE FIELD

Algonquin 2	5 of 16–45–1–W. 4th	31– 5–31	17– 9–31	2206	Abandoned.
Rayco 1	3 of 4–47–1–W. 4th	7– 2–31	19– 6–31	2510	Suspended.

WAINWRIGHT FIELD

Bethwain 2	16 of 4–45–6–W. 4th	14–11–29	.....	2305	Repaired. Shut off access of water.
Montreal Alta. 1	2 of 15–45–7–W. 4th	5– 6–31	8–12–31	2621	Suspended.
Cottonbelt 1A	5 of 21–21–4–W. 5th	4–12–30	.....	2610	Suspended for some months. Resumed and running casing.
Elbow 1	11 of 35–22–5–W. 5th	9– 4–29	.....	2336	Suspended for some months. Resumed and trying to shut off water.
Greystone 2 (Signal Hill)	9 of 34–23– 5–W. 5th	1– 7–26	.....	4212	Suspended.
Brooks 4	12 of 33–18–14–W. 4th	25– 9–31	13–12–31	1370	Small gas producer.
Brooks 5	4 of 33–18–14–W. 4th	20– 1–32	29– 2–32	1297	Small gas producer.
Ranchmen 1	16 of 13–20–29–W. 4th	1– 1–27	.....	5483	Suspended.
H.B. O. & G. Co. Paintearth 1	5 of 27–39–14–W. 4th	24– 7–30	22– 8–31	4675	Suspended.
H.B. O. & G. Co. Keho 1	2 of 17–11–22–W. 4th	26– 6–30	.....	4926	Suspended until spring. To test oil showing near bottom.
H.B. O. & G. Co. Highwood 1	8 of 1–18– 3–W. 5th	21– 8–29	.....	4067	Finally abandoned.
Eagle Butte 2	4 of 30– 7– 3–W. 4th	30–11–29	22– 9–31	4725	Abandoned.
Irma Gas Syndicate 1	9 of 28–45– 9–W. 4th	27– 5–31	7– 7–31	353	Suspended.
Texas–Imperial Lethbridge 1	14 of 22– 8–22–W. 4th	20–11–30	2– 3–32	4578	Abandoned. Small showings of oil.
Medicine Hat 55	4 of 22–13– 5–W. 4th	27– 7–31	26– 9–31	1158	Extension of productive gas. Volume and pressure very good.
Medicine Hat 56	6 of 10–13– 5–W. 4th	12– 5–31	14– 7–31	1119	
Commonwealth Milk River 1	8 of 9– 3–15–W. 4th	7–11–28	26– 2–32	5249	Suspended.
Mayland Southern 1	3 of 4– 1– 9–W. 4th	31– 3–31	.....	2750	Found gas. Shut down for winter.
A.P. Con. Spring Coulee 1	11 of 15– 4–23–W. 4th	11– 4–30	20–11–31	6191	Abandoned.
Parco Twin River 1	16 of 34– 1–20–W. 4th	30– 6–31	30–12–31	4146	Found oil at 3,875 ft. Plugged back to oil horizon. Testing.
Crudome 1	9 of 8–72–24–W. 4th	26– 8–31	.....	940	Drilling.
Ontario–Alberta 1	15 of 34–17–18–W. 4th	11– 5–28	.....	3592	Finally abandoned during year.
Cartier 1	6 of 36–31– 7–W. 5th	25– 4–31	19–12–31	1135	Suspended.
A.P. Con. Taber 1	3 of 11–10–17–W. 4th	23– 9–29	17– 9–31	3602	Abandoned. Drilling started by Colehunter Syndicate.
Northwestern Utilities 22	3 of 1–49–13–W. 4th	16– 3–31	2– 5–31	2190	Gas well.
Northwestern Utilities 32	10 of 31–48–12–W. 4th	19– 3–31	2– 5–31	2215	Gas well.
C.D. & P. 1	10 of 21–19– 3–W. 5th	13– 9–29	8– 4–31	5010	Abandoned.
Innerfold	2 of 6–20– 3–W. 5th	25– 7–29	.....	4280	Abandonment carried out during year.
A. G. & F. Yarrow 1	16 of 34– 3–30–W. 4th	21– 8–30	28– 5–31	4810	Abandoned.
Weymarn Pincher Creek 2	5 of 7– 6– 1–W. 5th	19–12–29	26–12–31	3900	Suspended.

Forestry

REPORT OF THE DIRECTOR OF FORESTRY, T. F. BLEFGEN

This report covers the first complete year of operation of the Forest Service of the Province of Alberta. The year was a very busy one for the new organization in that the Service continued to be actively engaged on work connected with unemployment relief. The responsibility of the Forest Service was broadened by undertaking the administration of The Prairie Fires Act, and a very difficult situation arose in respect to forest protection. The new organization was faced with one of the worst fire seasons on record during the first year of its existence.

Fires and Forest Protection

The fire season of 1931 was possibly the most difficult one experienced by any forest protective organization in this Province. Many conditions prevailed during this period, producing a situation which resulted in a great many fires, involving costly control measures and an immense loss of forest resources.

The winter of 1930-31 was remarkable for its extremely mild weather and also for its exceptionally light snowfall, which left the ground and the forest cover in a very hazardous condition in the spring. The spring danger period was abnormally long, and it was during this time that the majority of fire-fighting was done. High winds, low humidity and very dry ground and ground cover provided ideal conditions for the starting and the rapid spread of fires. As a result of these conditions and due to the situation in respect to unemployment, a great many incendiary fires occurred.

The urge to obtain some sort of remunerative work, the clearing of land and the carelessness of campers and of those travelling through forested areas may be said to be the principal contributory causes of fire origin. A total of 622 fires was acted on by the Forest Service.

Destructive fires originating from settlers' clearing fires were 21.86% of the total of all conflagrations, resulting in a control cost of $26,098.40 and an approximate loss in forest resources of $259,908.70; from campers, 23.63% of the total, control cost $19,541.49, loss in forest resources $142,910.25; from incendiary causes, 15.11% of the total, control cost $22,972.64, loss in forest resources $179,467.78. It will be noted from the attached fire statements that the largest number of fires and the greatest loss in forest resources occurred in areas outside the established provincial forest reserves.

The spring hazard period was effective over the territory east and north of the mountain and foothill country, and lasted until the middle of June. Conditions within the forests along the east slope of the Rocky Mountains became hazardous towards the middle of

July and continued until September 10th. During the latter part of this period it became necessary to close to forest travel that portion of these forests south of the Bow River valley. Again, in the autumn, conditions became critical. Mild weather and good roads resulted in an active hunting season throughout the Province. The heavy growth of grasses and weeds was in a highly inflammable state during this period, which was of greater length than usual. The situation was completely relieved from the 10th to the 16th of November when winter weather set in.

The field staff was of similar strength to that previously employed by the Dominion Forest Service, and in practically all instances the personnel remained unchanged from that Service. At the height of the fire season this experienced staff was unable to meet the situation, principally due to the carelessness of the camper, the carelessness and ignorance of the newer settler and the urge towards incendiarism. In one ranger district seventeen fires were reported in one day. Fires were fought and controlled, only to break out again, having been set outside the fire line.

It will be noted in the fire statements that ten prosecutions were pressed to a successful conclusion. These were initiated by the Forest Service, and two were prosecuted under the Criminal Code. The period of this report shows a greater number of prosecutions than usual, but the numbers are still indicative of the apathy of many citizens in respect to forest fires. The prosecutions also indicate that officers of the Forest Service were more successful in law enforcement than in many previous years.

During the year the Forest Service received very fine co-operation from many directions. This was particularly true in the case of the Alberta Provincial Police, all ranks rendering assistance in law enforcement and fire prevention and suppression. The Service is also indebted to the pilots of various flying organizations in the north of the Province for valuable information in respect to fire locations, and to many organizations, private concerns and individuals for co-operation and assistance in respect to fires and for support in the work. Individuals appointed as honorary fire guardians under authority of The Prairie Fires Act assisted the Service in many ways and provided for greater convenience in the matter of obtaining burning permits. Individuals acting under this appointment are doing so without remuneration. The service is proud to have associated with it such public-spirited citizens.

Close co-operation between the Board of Railway Commissioners, officials and employees of the various railways and officers of the Service has provided results which are gratifying in the matter of fires originating from railway operation. A thorough understanding of the requirements of the organization and continuous effort on the part of everyone concerned has brought about this issue. In this, as in other matters of a similar nature, the results obtained are in proportion to the efforts expended and the readiness of individuals to co-operate to the fullest extent.

The Prairie Fires Act.

Early in May the administration of this Act was taken over from the Department of Agriculture. In doing so the Forest Service gained more direct control of the fire situation, although considerable additional work was involved by reason of the transfer of

responsibility. This Act is the basic legislation supporting forest protection on Crown lands situate outside the established provincial forest reserves, and it is also the supporting legislation in respect to fire prevention and protection throughout the Province excepting only cities, towns and villages and national parks.

In order to provide for better control in regard to forest protection and also in regard to the protection of private property, new regulations, framed under the authority of this Act, were prepared and authorized by Order-in-Council.

With a view to the better protection of public and private property, a more stringent enforcement of the Act and the new regulations was made resulting in quite a number of prosecutions originating at the instance of officers of the Forest Service, the Alberta Provincial Police and municipal officials. Before the season was over, it was noted that this procedure was having a considerable effect, a decided reduction in the number of clearing fires which ran at large being evident.

The entire Province was declared a fire district, and the use of fire for clearing land, destruction of debris, etc., was only sanctioned under permit, which was issued to the applicant when the required safeguards were provided and when ground and weather conditions permitted. Burning under such protective measures and conditions is encouraged, and every effort is made to provide for the convenient issuance of burning permits to those persons requiring them.

Safe burning is absolutely essential if the destruction of public and private property is to be avoided. During the fire season of the year 1931, it was only too apparent that a great many persons desiring to burn gave little thought to the safety of neighbouring public or private property, the immediate requirements of the individual being the only consideration.

New legislation, more suitable to present day conditions and tending to facilitate administration in this particular, has been under consideration.

Land clearing operations on marginal and sub-marginal forest land must be controlled to the extent that unnecessary forest destruction followed by changing climatic conditions and destructive winds, drought, damaging floods, erosion, general lowering of the water table, soil damage and destruction of wild life, be avoided.

NUMBER OF PROSECUTIONS (By Forest Service)

Prosecutions	10
Convictions	10

SUMMARY OF FIRE LOSS BY CAUSES INSIDE FOREST RESERVES—PERIOD, APRIL 1st, 1931, TO DECEMBER 31st, 1931

Cause	No.	Per Cent.	Cost of Suppression	Area (in acres)	Salvable Timber F.B.M.	Salvable Timber Cords	Unsalvable Timber F.B.M.	Unsalvable Timber Cords	Total Loss
					LOSS				
Campers	9	29.03	$ 153.57	85.05	.5 M.	2	1.03 M.	.....	$ 10.30
Smokers	1	3.23	50.15	1.25	.....	7	.....	10	7.50
Settlers	2	6.45	3,963.39	45,248	3 M.	15	2,482.50 M.	7	34,573.52
Railways	5	16.13	22.93	7.75	.....	.....	.....	.....	7.50
Lightning	3	9.68	26.00	7	.....	.....	.....	8	4.00
Industrial Operations	2	6.45	605.55	132	9 M.	86	2.20 M.	26	198.75
Incendiary	4	12.90	971.48	1,148	18 M.	.....	.....	.....	104.65
Public Works	1	3.23	13.76	.....	.....	.....	.....	.....	.....
Unclassified	2	6.45	11,623.54	5,589	2,340 M.	2,976	3,810 M.	111,548	119,745.25
Unknown	2	6.45	193.75	.....	.....	.....	.....	.....	.....
TOTALS	31	100.00	$17,624.12	52,218.05	2,370.5 M.	3,086	6,295.73 M.	111,599	$154,651.47

SUMMARY OF FIRE LOSSES OUTSIDE ALBERTA FOREST RESERVES—PERIOD, APRIL 1st, 1931, TO DECEMBER 31st, 1931

N.B.—Fires within the Edmonton Fire Ranging District, as well as those outside Forest Reserves acted upon by the protective staff, are summarized on this form.

Campers	138	23.35	$19,387.92	92,659.12	2,765.5 M.	24,180	53,366.5 M.	61,513	$142,899.95
Smokers	19	3.22	958.57	1,584.62	2.5 M.	45	1,177.5 M.	395	2,944.50
Settlers	134	22.68	22,135.01	218,024.45	14,259.5 M.	27,491	15,296 M.	381,595.5	225,335.18
Railways	36	6.09	1,119.58	8,363.38	12,501 M.	11,183	4,622 M.	1,599	78,161.61
Lightning	1	.17	2,973.33	5,000	.....	.....	2,800 M.	26,000	14,175.00
Industrial Operations	10	1.69	1,335.12	2,780	.....	.....	103 M.	3,320	3,930.75
Incendiary	90	15.23	22,001.16	159,337.75	84,007.5 M.	41,300	14,395.5 M.	148,356	179,363.13
Public Works	8	1.35	423.51	3,330	.....	.....	50 M.	8,384	2,344.00
Unclassified	7	1.18	1,135.73	13,091.25	.....	.....	27,403 M.	37,075	30,997.25
Unknown	148	25.04	10,618.96	48,487.50	21,000 M.	.....	3,477 M.	16,388	32,684.42
TOTALS	591	100.00	$82,088.89	552,658.07	134,536 M.	104,199	122,690.5 M.	684,625.5	$712,835.79

SUMMARY OF FIRE LOSSES, EDMONTON FIRE RANGING DISTRICT—PERIOD, APRIL 1st, 1931, TO DECEMBER 31st, 1931

Cause	No.	Per Cent.	LOSS Cost of Suppression	Area (in acres)	Salvable Timber F.B.M.	Salvable Timber Cords	Unsalvable Timber F.B.M.	Unsalvable Timber Cords	Total Loss
Campers	128	25.28	$18,955.92	88,053.75	2,765.5 M.	24,180	53,280.5 M.	56,248	$135,407.95
Smokers	12	2.37	715.07	981.25	2.5 M.	45	1,177.5 M.	375	2,182.00
Settlers	113	22.34	20,089.48	211,032.50	14,255 M.	27,440	15,244 M.	379,303	223,755.68
Railways	23	4.55	1,089.39	7,962	12,500 M.	11,180	4,610 M.	1,550	78,102.50
Lightning	1	.20	2,973.33	5,000	.....	.....	2,800 M.	26,000	14,175.00
Industrial Operations	9	1.78	1,237.88	2,780	.....	.....	103 M.	3,320	3,930.75
Incendiary	64	12.64	14,671.02	131,389	75,107.5 M.	31,300	8,672.5 M.	138,366	132,174.88
Public Works	5	.99	411.97	3,325	.....	.....	50 M.	8,384	2,344.00
Unclassified	7	1.39	1,135.73	13,091.25	.....	.....	27,403 M.	37,075	30,997.25
Unknown	144	28.46	10,196.16	42,157.50	21,000 M.	.....	3,303 M.	10,860	29,891.49
TOTALS	506	100.00	$71,475.95	505,772.25	125,630.5 M.	94,145	116,643.5 M.	661,481	$652,961.50

SUMMARY OF RAILWAY FIRE LOSSES—PERIOD, APRIL 1st, 1931, TO DECEMBER 31st, 1931

N.B.—This is a summary of figures compiled by the Railway Fire Inspector for Alberta, and is not included with the Forest Service Summary.

NATURE OF LOSS

Cause	No.	Per Cent.	Young Growth (Acres)	Timber Land (Acres)	Slash (Acres)	Non-Forested (Acres)	Total Area (Acres)	Other Property	Total Loss
Locomotives	31	27.19	.....	.....	.....	.....	.....	.....	.....
Employees	83	72.81	.....	.....	.....	.....	.....	.....	.....
Sub-totals	114	100.00	516	356.25	.....	1,649.25	2,521.50	$ 276.07	$ 2,239.62
Campers and Travellers	10	8.40	.....	.....	.....	.....	.....	.....	.....
Settlers	102	85.72	.....	.....	.....	.....	.....	.....	.....
Other Causes	7	5.88	.....	.....	.....	.....	.....	.....	.....
Sub-totals	119	100.00	1,025.25	1,530	.....	4,500	7,055.25	$1,152.00	$10,289.00
TOTALS	233	.....	1,541.25	1,886.25	.....	6,149.25	9,576.75	$1,428.07	$12,528.62

SUMMARY OF FOREST FIRE LOSSES WITHIN AND OUTSIDE ALBERTA FOREST RESERVES—PERIOD, APRIL 1st, 1931, TO DECEMBER 31st, 1931

	No.	Per Cent.	Cost of Suppression	Area (in acres)	Salvable Timber F.B.M.	Salvable Timber Cords	Unsalvable Timber F.B.M.	Unsalvable Timber Cords	Total Loss
				LOSS					
Cypress Hills	5	.81	$ 19.88	30	.....	.....	.....	.....	.....
Crow's Nest	15	2.41	13,880.38	6,193.67	2,371 M.	3,122	3,812.20 M.	111,592	$120,429.90
Bow River	4	.64	330.00	1,120	.....	2	.....	.....	.....
Clearwater	35	5.63	6,966.93	25,338	8,900.5 M.	10,000	2,440.50 M.	.....	38,882.20
Brazeau	5	.80	179.35	2.75	.....	.....	.....	.....	7.50
Athabasca	7	1.13	105.06	344	.....	.....	.....	20	10.00
Lesser Slave	45	7.24	6,755.46	66,075.45	4.5 M.	16	6,090.03 M.	23,131.5	55,196.16
Edmonton Fire Ranging District	506	81.34	71,475.95	505,772.25	125,630.5 M.	94,145	116,643.50 M.	661,481	652,961.50
TOTALS	622	100.00	$99,713.01	604,876.12	136,906.5 M.	107,285	128,986.23 M.	796,224.5	$867,487.26

DISTRIBUTION OF FIRES BY MONTHS WITHIN AND OUTSIDE ALBERTA FOREST RESERVES—PERIOD, APRIL 1st, 1931, TO DECEMBER 31st, 1931

N.B.—One campers' fire and one of unknown origin occurred before April 1st

	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.	Total
Campers	15	40	10	13	19	9	24	13	3	147
Smokers	5	6	3	1	2	1	1	1	....	20
Settlers	30	64	27	3	6	1	5	....	....	136
Railways	9	12	9	3	3	1	4	....	....	41
Lightning	....	....	1	3	....	....	....	....	....	4
Industrial Operations	2	6	1	1	1	....	1	....	....	12
Incendiary	19	35	25	3	9	2	1	....	....	94
Public Works	1	....	1	2	1	....	4	....	....	9
Unclassified	1	2	1	1	3	1	....	....	....	9
Unknown	29	35	21	6	20	18	16	4	....	150
TOTALS	111	200	99	36	64	33	56	18	3	622
Percentages	17.84	32.16	15.92	5.79	10.29	5.31	9.00	2.89	.48	

SUMMARY OF FOREST FIRE LOSSES BY CAUSES WITHIN AND OUTSIDE ALBERTA FOREST RESERVES—PERIOD, APRIL 1st, 1931, TO DEC. 31st, 1931

(This does not include fires reported by Railway Fire Guardian for Alberta.)

Cause	No.	Per Cent.	LOSS Cost of Suppression	Area (in acres)	Salvable Timber F.B.M.	Salvable Timber Cords	Unsalvable Timber F.B.M.	Unsalvable Timber Cords	Total Loss
Campers	147	23.63	$19,541.49	92,744.17	2,766 M.	24,182	53,367.53 M.	61,513	$142,910.25
Smokers	20	3.22	1,008.72	1,585.87	2.5 M.	52	1,177.50 M.	405	2,952.00
Settlers	136	21.86	26,098.40	263,272.45	14,262.5 M.	27,506	17,778.50 M.	381,602.50	259,908.70
Railways	41	6.59	1,142.51	8,371.13	12,501 M.	11,183	4,622 M.	1,599	78,169.11
Lightning	4	.64	2,999.33	5,007	.....	.....	2,800 M.	26,008	14,179.00
Industrial Operations	12	1.93	1,940.67	2,912	9 M.	86	105.20 M.	3,346	4,129.50
Incendiary	94	15.11	22,972.64	160,485.75	84,025.5 M.	41,300	14,395.50 M.	148,356	179,467.78
Public Works	9	1.45	437.27	3,330	.....	.....	50 M.	8,384	2,344.00
Unclassified	9	1.45	12,759.27	18,680.25	2,340 M.	2,976	31,213 M.	148,623	150,742.50
Unknown	150	24.12	10,812.71	48,487.50	21,000 M.	.....	3,477 M.	16,388	32,684.42
TOTALS	622	100.00	$99,713.01	604,876.12	136,906.5 M.	107,285	128,986.23 M.	796,224.50	$867,487.26

NATURE OF FOREST FIRE LOSSES WITHIN AND OUTSIDE FOREST RESERVES OF ALBERTA—PERIOD, APRIL 1st, 1931, TO DECEMBER 31st, 1931

Reserve or District	No.	Per Cent.	Size of Fires				Ownership			Nature of Loss			
			Class A 0 to ¼ acre	Class B ¼ to 10 acres	Class C 10–500 acres	Class D over 500 acres	Public (in acres)	Private (in acres)	Total (in acres)	Merchantable Timber Land (in acres)	Cut-over Timber (in acres)	Young Growth (in acres)	Not Forested (in acres)
Cypress Hills	5	.81	4	.....	1	.....	.....	30	30	.....	.....	.....	30
Crowsnest	15	2.41	4	6	4	1	5,998.25	195.42	6,193.67	506.25	940.50	4,434	312.92
Bow River	4	.64	3	.....	.....	1	1,120	.....	1,120	.....	480	.....	640
Clearwater	35	5.63	2	10	11	12	22,552.25	2,785.75	25,338	2,795.25	7,498	12,030.37	3,014.38
Brazeau	5	.80	3	2	.....	.....	2.75	.....	2.75	.....	.....	2.25	.50
Athabasca	7	1.13	2	3	2	.....	344	.....	344	2	.....	15	327
Lesser Slave	45	7.24	11	10	14	10	61,189.55	4,885.90	66,075.45	12,095.75	690.50	46,619.25	6,669.95
Edmonton Fire Ranging District	506	81.34	203	50	131	122	438,802.75	66,969.50	505,772.25	127,381.25	24,278	156,043	198,070
TOTALS	622	100.00	232	81	163	146	530,009.55	74,866.57	604,876.12	142,780.50	33,887.00	219,143.87	209,064.75
Percentages	.....	.....	37.30	13.02	26.21	23.47	87.64	12.36	100.00	23.60	5.61	36.23	34.56

Improvements

Existing roads, trails, buildings and telephone lines were maintained in a fairly satisfactory condition, in many cases with great difficulty. One lookout tower was erected on Buck Mountain, southwest of Breton. New work, excepting that dealt with by unemployed relief crews, was practically at a standstill.

SUMMARY OF IMPROVEMENTS—FISCAL YEAR, APRIL 1st, 1931, TO MARCH 31st, 1932

Provincial Forest	Cabins	Stables	Ranger Station Houses	Out-building and Additions	Tel. Lines (Miles)	Trails (Miles)	Fencing (length in rods)	Wells	Nurseries	Bridges	Entrance Gates	Fire Guards (length in feet)	Corrals
Cypress Hills	.....	.....	.....	.....	.....	.....	93	1*	.....	.....	.....	.....	.....
Crowsnest	.....	1†*	1†	1	6†* 6*	2	25	.....	.....	.....	.....	.....	2
Bow River	.....	1*	.....	.....	.....	8*	151	.....	.....	.....	.....	.....	.....
Clearwater	2*	.....	1*	.....	.....	.....	.....	1	.....	1*	2†	.....	.....
Brazeau	1†*	1*	.....	1	.....	26*	345	.....	.....	.....	.....	.....	.....
Athabasca	.....	.....	.....	1	.....	10.5	844	.....	.....	.....	.....	1,215	.....
Lesser Slave	4†*	.....	.....	.....	.....	.....	.....	.....	4	.....	.....	.....	.....
TOTALS	7	3	2	3	12	46.5	1,458	2	4	1	2	1,215	2

†Started before April 1st.
*Incomplete.

IMPROVEMENTS—STATEMENT OF MAN-DAYS WORKED

Provincial Forest	Buildings		Bridges and Ferries		Roads and Trails		Fences and Pasture		Telephone Lines		Water Supply		Corrals		Fire-guards	Grounds	Misc.		Totals
	C.	M.	C.	M.	C.	M.	C.	M.	C.	M.	C.	M.	C.	M.	C.	M.	C.	M.	
Cypress Hills	....	18	....	....	....	....	19	....	....	....	12½	8½	....	8	....	....	3½	....	69½
Crowsnest	115	58	....	6	21	202	12	116	10	217	....	....	17	9	....	13	16	....	812
Bow River	10½	59½	....	5	10	498½	17	136½	....	241	....	10½	....	24	....	5½	10	....	1,028
Clearwater	53	73	13	....	....	114½	....	156	....	87½	2	6½	....	12	....	....	20	....	537½
Brazeau	73½	125	....	....	7	313	45½	23	....	134	....	1	....	½	....	34½	4½	....	761½
Athabasca	3	18	3	....	23	214	122	48	....	32	....	....	....	2	41	37	14	....	557
Lesser Slave	9	60	....	....	....	514	36	31	....	125	....	2	....	....	....	8	3	16	804
TOTALS	264	411½	16	11	61	1856	251½	510½	10	836½	14½	28½	17	55½	41	98	71	16	4,569½

C—new construction.
M—maintenance.

Grazing

Grazing conditions within the provincial forest reserves were excellent. The regulations in effect are satisfactory to both the stockmen and the Forest Service, and provide for that degree of control which is desirable, considered from the standpoint of forest protection and administration. There was no increase in grazing business and an increase cannot be expected under prevailing general conditions.

GRAZING REPORT, ALBERTA FOREST SERVICE, 1931–1932

Number of permits issued	456
Number of horses grazed	3,417
Number of cattle grazed	15,041
Number of sheep grazed	4,379
Revenue	$10,394.88

Sale of Timber

As noted in the preceding annual report, which indicated a curtailment of the timber industry, logging operations during the year had in view the replacement of certain dimensions which were short in the yards and the provision of sufficient employment to provide for the retention of key-men by the operators. Yards were not depleted of stocks to any great extent during 1931, and as a result, wood operations were greatly curtailed during the winter of 1931-1932. Coal-mining operations were at a low ebb, resulting in a lessened demand for mine timber. The entire situation in respect to the sale of timber will not improve until there is an improvement of general conditions throughout the country. Every effort is being made to assist the operators in their difficulties.

As a result of coal-mining inactivity in the mountain regions, several timber sales were inactive, and within the established forest reserves there was little demand for new timber sales. There were 21 inactive sales and 13 active sales. Four new sales were awarded this year, covering a total area of 333.5 acres—containing 1,440,000 feet B.M. and 22,000 lineal feet of timber.

ANALYSIS OF WOOD SALES, ALBERTA FOREST RESERVES
PERIOD APRIL 1st, 1931, TO MARCH 31st, 1932

Fuel wood (cords)	5,269.5
Fence–posts, rails and piling (pcs.)	68,677
Fence–posts, rails and piling (lin. ft.)	6,189
Railway ties (pcs.)	3,377
Saw timber (F.B.M.)	808 M.
Mine Timber (lin. ft.)	1,470,392
Lagging (cords)	12
Building logs (pcs.)	952
Building logs (lin. ft.)	34,894
Telephone and Telegraph poles	120
Fence droppers (pcs.)	300

TIMBER CUT FROM TIMBER SALES—PERIOD APRIL 1st, 1931, TO MARCH 31st, 1932

(13 sales were active and 12 were inactive during this period)

	Saw–Logs Dry F.B.M.	Saw–Logs Green F.B.M.	Mine Props Dry Lin. Ft.	Mine Props Green Lin. Ft.	Mining Timber Lin. Ft.	Lagging Lin. Ft.	Fir Tops Green Pcs.	Ties	Value
Brazeau	.....	594,752	131,906	.....	7,352	11,376	.....	15,000 l.f. 3,000 pcs.	$ 1,529.12
Clearwater	.....	.....	.....	.....	485,453	132,934	.....	.....	2,261.27
Crowsnest	65,098	1,335,942	7,728	10,562	11,606	4,112	993	.....	4,191.11
Lesser Slave	.....	1,142,288	.....	.....	.....	.....	.....	.....	1,709.76
TOTALS	65,098	3,072,982	139,634	10,562	504,411	148,422	993	15,000 l.f. 3,000 pcs.	$ 9,691.26

FORESTRY REVENUE, 1931–32

Timber Permits	$ 9,358.17
Timber Seizures	105.46
Timber Sales	14,708.16
Application and Guarantee Deposits	2,101.50
Grazing Permits	10,394.88
Hay Permits	264.25
Fishing Permits	1,342.25
Surface Rentals	1,813.21
Miscellaneous Use Permits	818.08
Sundry Revenue	2,613.35
Sale of Maps	9.55
	$43,528.86

Recreational Uses of Provincial Forests

The forest reserves of the Province continue to be popular regions for recreational purposes. Their use is increasing from year to year, particularly in the areas which are accessible by reasonably good roads. Camping and travelling activities are strictly controlled and, as a result, the danger from fire has steadily dropped until the camper within the forest reserves is no longer stigmatized as being the principal cause of forest fires in those areas. It is apparent that a great many people favour for recreational purposes the provincial forests of the east slope rather than the more highly developed regions.

Unemployment Relief

Two camps of fifty-man capacity were operated in the Red Deer district of the Bow River forest and were actively engaged in improving the Red Deer road. This is a road from the settlement east of the forest boundary up the Red Deer valley to the Red Deer ranger station which provides access to an important district in which there is a large area of spruce and pine forest. The improvement of this road will make possible quicker and more positive action on fire suppression, and will open this area to use for recreational purposes.

Work was carried on under difficult winter weather, snow being deep and cold intense. Forest Service road building equipment was used to great advantage and remarkably good work was done on this project.

SUMMARY OF WORK DONE BY UNEMPLOYMENT RELIEF CREWS, BOW RIVER FOREST, WINTER OF 1931–1932

Road Work:

Clearing (66 ft. wide)—7,100 lin. feet.
Stumping (30 ft. wide)—7,100 lin. feet.
Filling—9,479 cu. yds.
Ditching—4,950 lin. ft., containing 1,100 cu. yds.
Culverts—18; 18,549 lin. ft. of timber used.
Guard Rails—330 lin. ft.
Bridges (wooden)—1 of 10 ft. span; 1 of 105 ft. span.
Cribbing—675 lin. ft.
Corduroy (16 ft. wide)—75 lin. ft.
Side-hill Cuts—13,239 cu. yds.
Widening Roadway (from 21 ft. to 30 ft.)—5,600 lin. ft. of stumping.
Widening Right-of-way (from 30 ft. to 66 ft.)—5,600 lin. ft. of clearing.

Telephone Lines:

Relocating Line—18 poles; new construction.

Miscellaneous:

Fencing (poles)—100 yds.

Publicity

The only publicity attempted was that in connection with the Calgary Exhibition and Stampede and the Edmonton Exhibition. A forestry exhibit was featured in the Stampede ranger station situated on the Calgary Exhibition grounds, and at Edmonton a general exhibit of the Department of Lands and Mines was featured. Continued interest was indicated at both cabins by remarkably good attendance. The exhibits were not as satisfactory as those of previous years, due to the late and unlooked for withdrawal of the Dominion Forest Service from this field of activity.

Fisheries

REPORT OF THE DIRECTOR OF FISHERIES, R. T. RODD

Commercial fishing has been adversely affected, during the period of this report, by the shrinkage of local and export markets as a direct result of economic conditions. Alberta fish when it reaches eastern United States markets can only be considered a luxury by many of the people whose incomes have been seriously reduced. These people are now compelled to look for cheaper foods, and it can be safely said that the United States markets for Alberta fish have been reduced by at least fifty per cent. This lack of markets, which naturally reduced production, should result in better fishing for the future when more encouraging prices prevail, as the lakes, which have been heavily fished for a number of years, some close to the point of depletion, will have had a chance to improve.

Efforts have been made to increase the sale of fish by the revision of regulations and by extensions to the fishing seasons which have been granted to meet market conditions. The results expected from these extensions and changes in the regulations were somewhat minimized due to the same extensions and privileges also being granted in the other Prairie Provinces. Local markets were affected to some extent by domestic fishing carried on by residents to augment their food supply at very little cost. Angling for coarse fish has also greatly increased during the last two years. This method of fishing was conducted chiefly by farmers and others living near the lakes where this class of fishing is permitted free of charge.

Commercial Fishing

Additional decreases were shown in the commercial catch as compared with the previous season. These decreases were chiefly during the summer season, which is from May 16th to the end of September, and were due to the light production in three lakes, namely, Lesser Slave, Athabasca and Lac la Biche. With the large decrease in consumption of fresh water fish, it was found that the lakes in Manitoba and the Great Lakes could produce nearly all the fish required by the eastern markets, and as the fish from these waters would reach the market in better condition due to the shorter time in transit, the demand for Alberta fish was only to fill any shortage which might occur.

A large production of trout from Lake Athabasca was shown during the previous year which was carried over in cold storage, and the operators had to curtail operations to a minimum until the stock in cold storage could be disposed of. The production from this lake in 1931 showed a drop of over one million pounds.

During the latter part of the season heavy storms occurred on Lesser Slave Lake which affected fishing materially, and on Lac la Biche a fewer number of fishermen operated, although the limitation was nearly reached.

During the winter season fresh or unfrozen fish moved slowly, but owing to the extended season the production was fairly large.

At Pigeon, Wabamun and Cold Lakes the limitations were taken in a short period. The limitation at Pigeon Lake was exceeded by some 50,000 pounds. Fishing in these lakes was exceptionally good and the fish were readily disposed of when shipped fresh or unfrozen. Winter commercial fishing is carried on in Lac la Biche, but the production of whitefish in this particular lake has always been very small.

The production from the Calling Lake district was also small, the lakes of this district being a long distance from railway transportation. With the additional cost of freighting to the railway, the producers could only ship when the markets were at their best. Calling Lake itself was closed to commercial fishing in order to allow the whitefish to increase by natural propagation to offset the depletion which had resulted from over-fishing.

Very little fishing was carried on in the smaller lakes, as the markets did not warrant any great expense where only small production could be obtained.

Towards the end of the season the fishermen had to contend with heavy ice and very stormy weather, which made it difficult to set or move nets.

The following table gives the amounts and value of different species of fish taken by commercial fishing during the fiscal year:

TOTAL AMOUNT OF FISH IN ORDER OF IMPORTANCE—FISCAL YEAR, APRIL 1st, 1931, TO MARCH 31st, 1932

		Weight.		Value to Fishermen.		Value as Marketed.	
WHITEFISH	May 16/31 to Sept. 30/31	565,148		$25,796.00		$ 38,740.00	
	Dec. 1/31 to Dec. 31/31	414,111		16,064.12		32,134.36	
	Jan. 1/32 to Mar. 31/32	518,087		24,492.97		38,048.01	
			1,497,346		$ 66,353.09		$108,922.37
TROUT	May 16/31 to Sept. 30/31	408,985		$12,269.00		$ 30,749.00	
	Dec. 1/31 to Dec. 31/31	12,300		441.00		933.00	
	Jan. 1/32 to Mar. 31/32	43,573		1,109.73		3,289.39	
			464,858		13,819.73		34,971.39
PIKE	May 16/31 to Sept. 30/31	166,067		$ 4,584.00		$ 6,221.00	
	Dec. 1/31 to Dec. 31/31	152,639		3,926.62		3,936.62	
	Jan. 1/32 to Mar. 31/32	154,037		3,011.21		3,388.11	
			472,743		11,521.83		13,545.73
PICKEREL	May 16/31 to Sept. 30/31	259,949		$11,376.00		$ 15,275.00	
	Dec. 1/31 to Dec. 31/31	65,119		2,021.43		4,521.77	
	Jan. 1/32 to Mar. 31/32	111,860		4,754.28		6,311.18	
			436,928		18,151.71		26,107.95
TULLIBEE	May 16/31 to Sept. 30/31	50,014		$ 1,024.00		$ 1,024.00	
	Dec. 1/31 to Dec. 31/31	44,871		693.21		734.21	
	Jan. 1/32 to Mar. 31/32	44,573		851.70		851.70	
			139,458		2,568.91		2,609.91
PERCH	May 16/31 to Sept. 30/31	20,334		$ 1,101.00		$ 1,351.00	
	Dec. 1/31 to Dec. 31/31	265		11.35		19.05	
	Jan. 1/32 to Mar. 31/32	1,497		70.60		70.60	
			22,096		1,182.95		1,440.65
SUCKERS, LING, GOLDEYES, MULLETS	May 16/31 to Sept. 30/31	41,500		$ 648.90		$ 648.90	
	Dec. 1/31 to Dec. 31/31	179,059		1,029.12		1,029.12	
	Jan. 1/32 to Mar. 31/32	83,992		651.86		651.86	
			304,551		2,329.88		2,329.88
	TOTALS		3,337,980		$115,928.10		$189,927.88

Equipment

Owing to the reduced production throughout the Province, very little new equipment was purchased during the year, as most of the fishermen had been well equipped before this present depression occurred. The prices quoted for nets and twine were somewhat lower than during the previous year.

Markets

The demand for fresh water fish being limited and this Province being farthest from the big markets and being penalized to the extent of two cents per pound express charges as compared with Manitoba, represented another handicap to the industry. Owing to the large production of cheap sea fish, Alberta fishermen and operators could not compete at a profit except during such times as the Eastern Provinces were unable to supply the demand.

Very little fishing was carried on during the winter months in lakes distant from railway transportation, where the fish could only be brought out in a frozen condition. Eastern markets for this class of fish were very limited. A considerable amount of frozen fish, however, was disposed of in the local markets and by persons peddling their catch throughout the country. This was carried on well into the winter, or until the roads became blocked with snow or too heavy for the operation of trucks or motor cars.

Transportation

Freighting from the lakes to the railway was chiefly done with motor trucks until late in the season when the snow became too deep for successful operation, making it necessary to use teams. This slower method of transportation resulted in a quantity of the fish from the distant lakes having to be frozen, especially during severe weather. Efforts were made to keep the fish unfrozen by the use of cabooses on sleighs with various methods of heating, but were not always successful, as the heavy roads delayed the teams getting through, and in spite of efforts to heat the cabooses a large quantity of the fish would be frozen before reaching the railway or markets.

Domestic Fishing

This class of fishing was carried on by residents of the Province as a means of obtaining a supply of fish for domestic purposes only and not for sale. The domestic license is provided at a low charge, so that residents of the Province may obtain fish at any time of the season except in the spawning periods. Many farmers and settlers living in the vicinity of lakes where fishing by means of nets is allowed took advantage of the license, and carried on fishing for home use during the winter season.

There was a small decrease in the sale of this class of license as compared with the previous season, partly due to heavy ice and snow making it difficult to operate nets and due, no doubt, to some not having the necessary fee.

The amount of fish taken on domestic licenses also shows a decrease as compared with the previous year. It is estimated, however, that during the year 547,078 pounds of all classes of fish were taken on domestic licenses. This class of fishing was carried on

principally in the following lakes: Buck, Chin, Cold, Newell, Pigeon, Wabamun, Lac Ste. Anne, and Lac la Nonne.

Indian Fishing

Prior to the transfer of the resources, all Indians and half-breeds residing within the Province were granted free permits allowing the use of nets to obtain a supply of fish for domestic use. These permits are now only granted to Indians, resulting in a decrease in the number issued annually. Some difficulty has been experienced in controlling the Indian fishing during the spawning periods or closed seasons. At such times only sufficient fish, necessary for the supply of their families from day to day, but not for hanging or curing for future use, is permitted to be taken.

The amount of fish required by each Indian family is approximately one thousand pounds per year. The estimated quantity taken by Indians in the Province during the period of this report was 736,000 pounds of all classes of fish.

Licenses and Permits

A decrease is shown in the number of all licenses and permits issued. Due to marketing conditions, 280 less fishermen operated for commercial purposes than in the previous year. Scarcity of funds for the purchase of new equipment and lack of assurance regarding steady markets were mainly responsible for the decrease in numbers amongst the fishermen, many of whom, after years employed in this vocation, took up other occupations.

A decrease is also apparent in the number of angling permits sold. This was entirely due to the present financial condition. A number who in former years took pleasure from this sport could not afford the expense.

The following is a summary of all licenses and permits issued during the last two seasons. It might be explained that prior to the transfer of the resources, the fisheries within the forest reserves were administered by the Department of the Interior and the Fisheries Department was not supplied with a record of the angling permits sold within the reserves. This summary, therefore, can only show the number sold within the reserves during the last season. Forty-four of those issued by the Fisheries Branch and twenty-five issued by the Forestry Branch were non-resident.

	April 1st, 1930, to March 31st, 1931	April 1st, 1931, to March 31st, 1932
Domestic Licenses	566	555
Fishermen and Commercial Licenses	1,033	755
Angling permits sold by Fisheries Branch	7,731	6,533
Angling permits sold by Forestry Branch	.....	566
Indian permits	1,130	736
TOTAL	10,460	9,145

Condition of the Fisheries

Generally speaking, the fisheries of the Province are in good condition. A few of the lakes which were over-fished in the past are now improving. With limitations placed on the commercial catch on all lakes of any importance, with reduced fishing or closing for a short period and restocking those which showed signs of depletion, all should be in a good condition in a short time.

Owing to extreme drought some of the streams in the southern part of the Province were dangerously low during the latter part of July and the month of August. Indications for a time pointed to a heavy loss of game fish, but fortunately the natural instinct of trout and grayling when streams become low and warm is to seek deeper and cooler water where possible. Conditions were watched closely by the fishery officers. Where there was danger of fish becoming stranded they were rescued and transferred to more favourable waters. At the same time all undesirable fish found, such as suckers, pike and ling, were removed. Conditions were greatly improved during September and October by showers and light snowfalls in the foothills. Improved angling towards the end of the season added to investigation by fishery officers showed that very little loss had occurred as a result of low water.

Angling

While there was a decrease in the number of angling permits issued, angling during the last few years has increased considerably as more people have taken advantage of free fishing in many of the lakes where the coarser variety of fish is found and where no angling permit is required. This applied especially to the northern part of the Province, where there are a great number of lakes well stocked with pike, pike-perch (pickerel) and yellow perch. Many people in poor circumstances, especially new settlers, did considerable angling in these lakes for food supply during the year.

Hastings lake, which was stocked with perch in 1925, continues to provide excellent fishing. The other principal lakes which supplied good fishing for the coarse variety of fish were: Lac la Nonne, Nakamun, Gull, Sylvan, Pine, Buffalo, McGregor, Newell, Mere, Mayatan, Baptiste, Pigeon, Wabamun and Lac la Biche.

Angling in the trout streams of the foothills was good during the early and latter parts of the season, but towards the close of July and through the month of August the streams were low and warm and the trout were not found in the usual places. Indications, however, at the end of the season showed excellent prospects for the next season's fishing.

The estimated amount of fish of different species taken by angling during the fiscal year, which was slightly below that taken during the season 1930-1931, was as follows:

Trout	281,475	pounds
Rocky Mountain Whitefish	90,500	"
Arctic Grayling	86,000	"
Goldeyes	12,540	"
Pickerel	315,130	"
Perch	252,300	"
Pike	1,176,949	"
TOTAL	2,214,894	"

Observation of Regulations

Prosecutions during the fiscal year numbered sixty-eight. There were also forty confiscations of articles used in contravention of the fishery regulations. The following is a summary of the prosecutions which materialized during the year:

Angling without permits	14
Fishing with illegal gear	12
Having undersized fish in possession	8
Fishing in closed season	7
Angling in closed waters	7
Angling in closed season	6
Fishing without license	4
Pollution of lakes and streams	4
Possession of freshly caught fish during closed season	4
Selling fish taken without license	1
Snaring fish	1
TOTAL	68

It will be observed that the greater number of charges were for angling without permits. The excuse given for this offence was usually that either permits could not be obtained or it was thought that none were required.

In the enforcement of the regulations much assistance was given by the various fish and game protective associations. With the large total membership throughout the Province, the influence of these associations is becoming more noticeable.

Excellent assistance was also given by the Forestry staff and the Provincial Police. The Fishery officers with this assistance were enabled to keep closer check on the fishing throughout all parts of the Province.

Irrigation

There are at present some thirty-eight irrigation schemes in the Province which require regular inspection by the Fishery officers during the summer months. Some of these schemes are large and operated by corporations or farming communities, while the smaller ones are privately owned and operated, and as a rule take their water supply from the smaller streams frequented by trout or game fish.

Where the schemes are small and the water is being taken from streams frequented by trout, the owners or operators are compelled to install proper screens to prevent the fish from entering the ditches and it is the duty of the Fishery officers to see that these screens are in place when the ditch is in operation.

No screen has yet been devised for the large systems which will prevent fish from entering the ditches, withstand the pressure of the water and at the same time allow sufficient flow. These larger schemes usually take the water from the more important rivers where there is always, during the irrigation period, a considerable amount of debris which quickly clogs the screens, stopping the flow. Fortunately these particular projects usually take the water from the river at a point where no game fish is found, or where the class of fish which abounds in the vicinity is usually pike, suckers and ling. As all of these larger irrigation systems have created lakes or reservoirs, very few of the fish entering the ditches are lost. Those not taken for food, by the people living in the vicinity of the ditches, enter the lakes or reservoirs. Excellent pike fishing is now found in all. In nearly every instance these large irrigation projects have supplied fishing in districts where a few years ago no fishing of any kind was found. The following are the principal lakes or reservoirs now supplying good fishing: Chin, Keho, Park, Chestermere, Newell and McGregor. In some of these lakes the situation has developed to such proportions as to permit both commercial and domestic fishing as well as angling.

Dams and Fishways

At present there are forty-eight dams erected in the rivers and streams throughout the Province for irrigation, power or storage purposes. Where considered necessary in the interests of the fisheries, the owners of these dams have been compelled to install and keep in repair efficient fishways. One of the duties of the Fishery officers is to inspect these regularly and report on conditions and, where necessary, instruct the owners to make repairs, etc. Little difficulty has been experienced in this regard, as in nearly every instance the owner appears quite willing to co-operate and carry out the work necessary to comply with regulations.

Pollution of Waters

Some difficulty has been experienced in the past regarding the control of pollution, as it was almost impossible for the small Fisheries staff to keep a check on the portable sawmills, the owners of which were amongst the greatest offenders. The co-operation, however, which is now rendered by the Forestry and Timber Branches of this Department has at last made it possible to keep a close check on these mills. Very few complaints were received during the year.

Other sources of offence in this connection were coal mines, oil wells, refineries, towns and cities, but assistance is now given by the Petroleum and Natural Gas Division in preventing pollution from the wells and refineries, and some of the towns and cities are expending large sums on sewage disposal plants. With this assistance and co-operation, the Fishery staff is now enabled to keep this pollution well under control and further improvement can be expected in the future.

Fish Culture

This may be considered a very important phase of the work of this branch, as it entails the upkeep of the supply of fish for commercial and domestic use as well as game fish for the sportsmen.

It also includes the inspection of waters barren of fish life or requiring special attention and stocking with suitable species where conditions are favourable.

In order to avoid the immediate expense of establishing provincial game fish hatcheries, the arrangements made with the Federal Government for the hatching of trout in the hatcheries already established within the parks were continued. These arrangements are satisfactory for the present, but in the near future, when funds are available and angling increases, the establishment of provincial game fish hatcheries may be found necessary.

During the season ninety-four plantings of trout fry from the Banff hatchery and sixty-three plantings of trout fry from the Waterton hatchery were made into waters outside the parks.

The following is a summary of the distribution of game fish fry into waters outside the national parks during 1931:

FROM BANFF HATCHERY

Rainbow trout	315,500
Cut-throat trout	420,000
Brown trout	290,000
Loch Leven trout	218,000
TOTAL	1,243,500

FROM WATERTON LAKES HATCHERY

Rainbow trout	582,000
Cut-throat trout	411,000
TOTAL	993,000

Arrangements have been made for a continuation of this work for the coming season with an additional 200,000 Rainbow trout to be hatched at Jasper Park, the fry to be distributed in the Edson district and Brazeau Forest Reserve. This is to avoid possible loss of fry during the long time in transit if shipped from Banff.

The season's operations of the whitefish hatchery at Lesser Slave Lake were most satisfactory. On April 1st, 1931, there were in the hatchery 114,440,000 eyed eggs. These began hatching on the 4th, and all were hatched and the fry distributed in that lake by the 16th of May. Immediately this was completed, all hatchery equipment was cleaned, pumps overhauled and boilers cleaned and left in proper condition. The temporary staff was then dismissed for the summer.

During the summer all equipment was overhauled by the superintendent and his assistant. Work was also done to improve the grounds. The lake shore in front of the hatchery was cleared of all driftwood and some forty cords of woods were gathered, cut and piled.

About the beginning of October preparations were made for the collection of eggs, and camps were established at Whitefish Lake, north of Grouard, and on the north shore of Lesser Slave Lake. This collection was successful, as the following table will show:

Egg collection, Whitefish Lake	119,275,000	
Planted in Whitefish River	7,000,000	
Planted in Lesser Slave Lake	8,000,000	
Placed in hatchery	104,275,000	
Loss in eggs to March 31st, 1932	7,325,000	
Balance in hatchery at end of year		96,950,000
Egg collection, Lesser Slave Lake	28,925,000	
Loss to March 31st, 1932	3,775,000	
Balance in hatchery at end of year		25,150,000
Total balance from both sources		122,100,000

As no further loss is anticipated after March 31st, it is intended to dispose of this balance in the following manner:

Plant in Lake Newell, eyed eggs	5,000,000
Plant in Whitefish Lake, eyed eggs	10,000,000
Plant in Buck Lake, eyed eggs	5,000,000
Distribute in Slave Lake as swimming fry	102,100,000
TOTAL	122,100,000

Numerous requests to stock lakes or bodies of water have been received at different times. As many of these requests are for sloughs or waters entirely unsuitable for fish, such applications can only be successfully dealt with after proper examination is made during the summer months by an efficient officer of the Department. During the season thirty-seven examinations of such waters were made, and the following decisions were arrived at:

Fourteen small lakes were found to be barren of fish life, but suitable for trout;
Six were found to contain fish and no further stocking necessary;
One was found to contain trout and one to contain pike, but required restocking;
Eight were barren of fish life, but suitable for perch, pike, or pickerel;
Seven could only be classed as sloughs and unsuitable for any species of fish.

Those found suitable for fish will be stocked as quickly as possible either by transfer from other lakes or with fry from the hatcheries as conditions of the lakes warrant. Examinations of other lakes will be carried out at the earliest opportunity.

Four lakes which were examined previous to this season were stocked, three with trout, and one with yellow perch. Favourable reports have been received on three. The fourth, being large, it is difficult to locate the young fish and no proof of success has yet been obtained.

Record of licenses as issued monthly and statement of cash receipts covering this period, follow:

RECORD OF LICENSES ISSUED AND SOLD

FISCAL YEAR, APRIL 1st, 1931, TO MARCH 31st, 1932

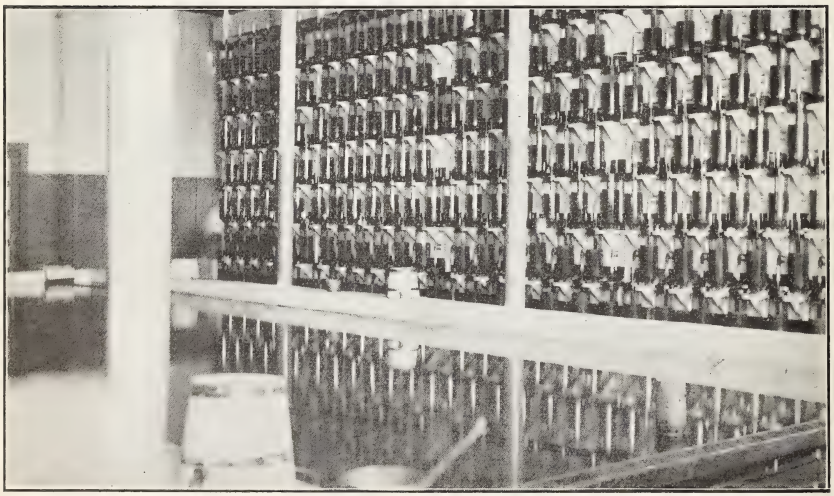
Month.	Domestic.	Fisherman's.	Commercial.	Angling Permits.	Indian Permits.	Total.
April	10	7	....	....	532	549
May	85	118	59	85	75	422
June	76	15	....	2,097	118	2,306
July	55	7	31	1,884	....	1,977
August	15	13	15	1,302	....	1,345
September	9	15	1	689	....	714
October	5	2	....	374	....	381
November	31	31	12	40	8	122
December	211	253	2	58	3	527
January	55	94	....	....	....	149
February	1	69	2	4	....	76
March	2	9	....	....	....	11
TOTAL	555	633	122	6,533	736	8,579

In addition to the above, the Forestry Service sold on behalf of the Fisheries, angling permits numbering	566
GRAND TOTAL	9,145

ITEMIZED REVENUE OBTAINED DURING FISCAL YEAR, APRIL 1st, 1931, TO MARCH 31st, 1932

Month	Fisherman's License	Domestic License	Commercial License	Angling Permits	Sales	Sundry	Total
April	$ 35.00	$ 20.00	.....	.....	.....	$ 5.00	$ 60.00
May	590.00	170.00	$ 590.00	$ 171.25	$ 20.50	.....	1,541.75
June	75.00	152.00	.....	4,211.75	.....	.....	4,438.75
July	35.00	110.00	310.00	3,819.10	2.00	.....	4,276.10
August	65.00	30.00	150.00	2,646.90	1.00	.....	2,892.90
September	75.00	18.00	10.00	1,404.50	12.25	3.15	1,522.90
October	10.00	10.00	.....	764.00	6.75	3.15	793.90
November	155.00	62.00	120.00	93.75	5.00	.....	435.75
December	1,265.00	422.00	20.00	116.00	7.42	.....	1,830.42
January	470.00	110.00	.....	.....	3.25	4.00	587.25
February	345.00	2.00	20.00	8.00	.....	.....	375.00
March	45.00	4.00	.....	.....	57.50	.....	106.50
TOTAL	$ 3,165.00	$ 1,110.00	$ 1,220.00	$13,235.25	$ 115.67	$ 15.30	$18,861.22

Exterior of Alberta Government fish hatchery at Canyon Creek, Lesser Slave Lake.



Interior of Alberta Government fish hatchery at Canyon Creek, Lesser Slave Lake, showing glass jars filled with whitefish eggs and fry retaining tank in fore-ground.

Accounting Division

REPORT OF THE ASSISTANT ACCOUNTANT, I. N. McKINNON

A surplus of $341,859.06 on income account was shown for the fiscal year, ending March 31st, 1932, receipts being $1,032,307.57 and expenditures $690,448.51. While this does not compare favourably with the surplus of $384,768.54 shown on operations for the six months period October 1st, 1930, to March 31st, 1931, when the Department was first started, it should be borne in mind that though the present stress of economic conditions has been an adverse factor, collections of this Department are considerably heavier during the second six months period of the fiscal year than they are during the first. Expenditures, on the other hand, are greater during the first six months, chiefly due to expenses for fire-fighting, which during the past year amounted to $93,087.55, exclusive of rangers' salaries.

Total cash received from all sources amounted to $1,135,415.64, particulars of which are given on statements "A" and "B".

The setting up of 30,000 odd sales, lease and royalty accounts has been a more difficult task than was originally anticipated, due to the inaccuracy of the transcripts received from the Dominion Government, whose policy, as pointed out in a previous report, was not to charge up instalments or rentals as they became due, but when a payment was made, their accounts, with the exception of school lands accounts, were not balanced. It is hoped that by the end of the next fiscal year all accounts will have been brought up to date.

Reports on the various branches of the Department follow:

Land Patents Branch

Letters Patent, to the number of 784, covering 111,424.478 acres, were issued as per the following summary:

Grants	Patents	Acres
Homesteads	632	99,261.668
Soldier Grants	49	7,332
Land Sales	24	855.44
Pre-emption Sales	3	480
Special Grants	15	369.26
Quit Claim Special Grants	1	8.62
School Lands Sales	34	2,937.59
Railways	26	179.90
	784	111,424.478

Homestead Entries

Four thousand four hundred and twenty-eight (4,428) entries were granted during the year, covering approximately 708,480 acres, as compared with 3,748 entries, with an approximate acreage of 599,480 granted during the previous six months. Details of entries granted will be found in statement "M".

Cancelled Entries

Entries cancelled during this period were as follows:

Edmonton Land Agency	1,361
Calgary Land Agency	159
Lethbridge Land Agency	26
Peace River Land Agency	603
Grande Prairie Land Agency	310
	2,459

Revenue

Collections of principal on sales which include pre-emptions and purchased homesteads amounted to $8,457.60 and interest to $2,551.53.

The Department has had considerable difficulty in regard to collections on purchased homesteads and pre-emptions. In some cases no payments had been received by the Dominion Government for over ten years, which has resulted in large arrears of interest being built up, most of which it will be impossible to collect.

Cancellation and Filing Authority fees which were instituted during the past year amounted to $2,766.00 and $334.00, respectively. Full particulars of receipts for this branch are given under statement "D".

Timber and Grazing Branch

Timber

Receipts from timber operations for the year amounted to $150,262.60 as compared with $96,842.09 for the previous six months. Timber products manufactured by holders of licensed and permit berths were as follows:

Board measure lumber manufactured	36,562,070
Railway ties	137,721
Piling (lineal feet)	2,736
Laths	1,840,900
Mine timber (lineal feet)	635,271
Logs (lineal feet)	7,566
Cordwood cords	70
Slabs	64

In addition to the above, 1,454,022 feet board measure of lumber were manufactured on school lands berths. A considerable amount of timber was also cut on miscellaneous permits, including 90,912 railway ties.

Grazing

Grazing receipts for the period amounted to $41,981.21; of this amount $288.76 was received on account of permits, the balance from leases, of which there are 3,948 in force, covering 3,367,150 acres. Collections for the previous six months amounted to $30,505.10.

Details of cash receipts for the branch are shown in statement "E".

Mining Lands Branch

Coal Leases

Collections from this source amounted to $275,087.66, including $143,122.55 royalties on coal mined on sales and Crown leases.

Decrease in royalty receipts from the previous year amounted to $57,812.36 (Dominion Government figures being used for the first six months). The output of coal from the mines decreased from 5,312,472 tons in 1930-31 to 4,882,975 tons in 1931-32. It

should be noted that these figures include tonnage mined from freehold land on which the Department receives no royalty. Leases in force number 584, covering 214,773.86 acres.

Petroleum and Natural Gas

There was a big decrease in both rental and royalty collections during this period, total amounts collected being less than those of the previous six months. Rentals, fees, etc., collected amounted to $57,711.87 as compared with $87,455.96 for the previous six months. Royalty receipts were $110,713.45 for the year and $110,882.84 for the previous six months. The decrease in royalties is accounted for by reduced prices received for products and the big decrease in the Turner Valley production, which has been even greater on Crown lands than on the non-royalty bearing freehold lands. Percentage of output from Government lands to the total production has decreased from 71.7 for the six months period, October 1st, 1930, to March 31st, 1931, to 55.8 for the period, October 31st, 1931, to March 31st, 1932.

Details of revenue collected by this branch are given in statement "F".

School Lands Branch

No sales of school lands by public auction were held during the past fiscal year. Collections on sales were down from the previous year, as was to be expected under present agricultural conditions. Receipts on account of principal amounted to $43,947.85, a decrease of $53,205.40 from the previous year. Interest collections amounted to $58,851.60, a decrease of $14,676.94. Receipts from other sources showed a corresponding decrease. Total school lands receipts for the year amounted to $164,036.80, as compared with $262,846.67 for the previous year.

Complete details of receipts are given in statement "G".

The Alberta School Lands Sales Trust Account as at March 31st, 1932, amounted to $18,136,725.81, particulars of which will be found in statement "H".

Arrears of interest on sales as at March 31st, 1932, were $2,228,014.55, details of which are given in statement "I". Total acreage still under contract is 659,818.4222.

Forestry Branch

Collections of revenue derived from the various forest reserves amounted to $43,528.86, complete details of which will be found in the Forest Service report and statement "J." Receipts for the previous six months amounted to $29,964.61.

Fisheries Branch

Cash receipts amounted to $18,861.22, which compared favourably with $4,829.29 for the previous six months. It should be noted, however, that receipts from angling permits, the chief source of revenue, amounting to $13,235.25 for the year, are mostly collected during the first six months of the fiscal year. Details of receipts are given in statement "K".

Index to Statements

A.—Statement of Cash Receipts by Branches.
B.—Statement of Cash Receipts from all sources.
C.—Statement of Cash Receipts by Agencies.
D.—Statement of Cash Receipts, Land Patents Branch.
E.—Statement of Cash Receipts, Timber and Grazing Branch.
F.—Statement of Cash Receipts, Mining Lands Branch.
G.—Statement of Cash Receipts, School Lands Branch.
H.—Statement of School Lands Trust Balance Sheet.
I.—Statement of Alberta School Lands Sales Revenue Account.
J.—Statement of Cash Receipts, Forestry Branch.
K.—Statement of Cash Receipts, Fisheries Branch.
L.—Statement of Cash Receipts, Administration of the Mines Act Branch.
M.—Statement of Homestead Entries Granted.
N.—Statement of Statistical Summary of Nationalities.

STATEMENT A.

GOVERNMENT OF THE PROVINCE OF ALBERTA

DEPARTMENT OF LANDS AND MINES

Statement of Cash Received by Branches

FOR PERIOD APRIL 1, 1931, TO MARCH 31, 1932

Land Patents Branch	$ 73,009.92
Timber and Grazing Branch	196,471.01
Mining Lands Branch	447,917.96
School Lands Branch	164,036.80
Forestry Branch	43,528.86
Fisheries Branch	18,861.22
Petroleum and Natural Gas Division	311.00
Administration of The Coal-mines Regulation Act Branch	7,271.28
Administration Revenue (Miscellaneous Fees)	597.47
Total Cash Receipts Allocated	$ 952,005.52
School Lands Branch Revenue collected, period April 1, 1930, to March 31, 1931, and deposited to General Revenue during current year	152,045.07
Unapplied receipts and monies subject to refund, carried forward from previous year	31,365.05
TOTAL CASH RECEIPTS	$1,135,415.64

STATEMENT "B".

GOVERNMENT OF THE PROVINCE OF ALBERTA

DEPARTMENT OF LANDS AND MINES

Statement of Cash Receipts from All Sources

FROM APRIL 1st, 1931, TO MARCH 31st, 1932

	Gross Receipts	Refunds	Net Revenue
INCOME ACCOUNT:			
Homestead Fees	$ 44,280.00	$ 40.00	$ 44,240.00
Improvements Collection Fees	82.75	.....	82.75
Cancellation Fees	2,766.00	8.00	2,758.00
Filing Authority Fees	334.00	.....	334.00
General Sales: Interest	2,551.53	.....	2,551.53
Cultivation Permits	12.00	.....	12.00
Surface Rentals	2,346.21	.....	2,346.21
Land Patents Sundry	1,578.64	69.90	1,508.74
Fur Farm Rentals and Fees, etc.	672.75	10.00	662.75
Timber Permits, Fees, Dues, etc.	176,535.89	2,135.68	174,400.21
Grazing Rentals, Fees, etc.	52,376.09	75.70	52,300.39
Hay Permits, Fees, Dues, etc.	2,820.80	59.50	2,761.30
Timber and Grazing, Miscellaneous	5,111.63	5.00	5,106.63
Administration of the Mines Act Branch:			
Certificate Fees	1,286.55	35.00	1,251.55
Report Books	1,036.35	4.90	1,031.45
Coal Sales Act, Reg. Fees	31.00	.....	31.00
Coal Lease Rentals	535.00	40.00	495.00
Coal Royalty (Road Allowances)	2,047.78	.....	2,047.78
Examination Fees	1,061.00	15.00	1,046.00
Mines Act Sundry	1,273.60	.....	1,273.60
Coal Rentals, Fees, etc.	133,012.16	45.00	132,967.16
Coal Mining Royalty	142,075.50	.....	142,075.50
Petroleum and Natural Gas:			
Fees, Rentals, etc.	57,711.87	53.00	57,658.87
Royalty	106,103.05	.....	106,103.05
Inspections	190.00	.....	190.00
Drilling Permits	20.00	.....	20.00
Quarrying Lease Fees and Rentals	2,155.37	.....	2,155.37
Mining Lands Sundry	2,350.61	15.00	2,335.61
Fishing Licenses	5,495.00	.....	5,495.00
Angling Permits	14,577.50	.....	14,577.50
Fisheries Sundry	130.97	.....	130.97
Tax Recovery Office Fees	411.50	.....	411.50
Administration Sundry Revenue	185.97	.....	185.97
School Lands	120,088.95	373.84	119,715.11
Income Account, 1931–32 Collections	$ 883,248.02	$2,985.52	$ 880,262.50
School Lands Revenue, 1930–31 Collections	152,045.07	.....	152,045.07
TOTAL INCOME ACCOUNT	$1,035,293.09	$2,985.52	$1,032,307.57
CAPITAL ACCOUNT:			
Land Sales: Principal	8,457.60	19.00	8,438.60
TOTAL INCOME AND CAPITAL ACCOUNTS	$1,043,750.69	$3,004.52	$1,040,746.17
UNAPPLIED RECEIPTS CARRIED FORWARD: (Subject to Refund)			
Improvements	17,640.60	3,403.38	14,237.22
Suspense	22,082.45	.....	22,082.45
	$1,083,473.74	$6,407.90	$1,077,065.84
TRUST ACCOUNTS:			
School Lands Trust Fund	43,947.85		
Petroleum and Natural Gas Cash Bonds	7,829.00		
Homesteaders' Trust Monies	165.05		
TOTAL CASH RECEIPTS	$1,135,415.64		

STATEMENT "C".

GOVERNMENT OF THE PROVINCE OF ALBERTA

DEPARTMENT OF LANDS AND MINES

Statement of Cash Receipts by Agencies

APRIL 1st, 1931, TO MARCH 31st, 1932

	Land Patents Branch	Timber and Grazing Branch	Mining Lands Branch	School Lands Branch	Total
Calgary	$ 5,021.03	$ 31,995.30	$247,217.53	$ 64,776.73	$349,010.59
Edmonton	39,002.28	130,983.30	104,146.18	61,213.69	335,345.45
Grande Prairie	11,662.26	3,667.23	267.19	5,847.18	21,443.86
Lethbridge	2,359.96	24,887.56	95,270.76	25,001.54	147,519.82
Peace River	14,964.39	4,937.62	1,016.30	3,082.02	24,000.33
Administration Office	.....	.....	.....	4,115.64	4,115.64
	$73,009.92	$196,471.01	$447,917.96	$164,036.80	$881,435.69

N.B.—Monies which were paid direct to Head Office have been allocated to the Agency concerned, wherever possible.

STATEMENT "D".

GOVERNMENT OF THE PROVINCE OF ALBERTA

DEPARTMENT OF LANDS AND MINES

Land Patents Branch

STATEMENT OF CASH RECEIPTS, APRIL 1st, 1931, TO MARCH 31st, 1932

	Calgary	Edmonton	Leth–bridge	Grande Prairie	Peace River	Total
Homestead Fees	$1,220.00	$25,660.00	$ 300.00	$ 6,670.00	$10,430.00	$44,280.00
Improvements	765.50	5,614.20	363.50	2,500.65	2,415.50	11,659.35
Cancellation Fees	32.00	1,626.00	12.00	430.00	666.00	2,766.00
Filing Authority Fees	8.00	234.00	2.00	44.00	46.00	334.00
General Sales:						
Principal	1,247.25	4,046.23	865.99	1,392.95	905.18	8,457.60
Interest	780.92	763.67	602.27	46.11	358.56	2,551.53
Cultivation Permits	12.00	.....	.....	.....	.....	12.00
Surface Rentals	408.00	.....	125.00	.....	.....	533.00
Lands Patents Mis–cellaneous	534.86	557.93	89.20	253.50	143.15	1,578.64
Homesteaders' Trust Monies	.....	.....	.....	165.05	.....	165.05
Fur Farm Rentals and Fees	12.50	500.25	.....	160.00	.....	672.75
	$5,021.03	$39,002.28	$ 2,359.96	$11,662.26	$14,964.39	$73,009.92

N.B.—Monies which were paid direct to Head Office have been allocated to the Agency concerned.

STATEMENT "E".

GOVERNMENT OF THE PROVINCE OF ALBERTA

DEPARTMENT OF LANDS AND MINES

Timber and Grazing Branch

STATEMENT OF CASH RECEIPTS, APRIL 1st, 1931, TO MARCH 31st, 1932

	Calgary	Edmonton	Leth–bridge	Grande Prairie	Peace River	Total
Timber: Fees, Dues, Royalties, etc.	$17,992.98	$126,488.69	$ 29.62	$2,968.03	$2,783.28	$150,262.60
Grazing: Fees, Rent–als, etc.	13,292.00	2,013.73	24,514.44	459.70	1,701.34	41,981.21
Hay: Fees, Dues, etc.	361.55	1,496.50	26.50	232.00	440.00	2,556.55
Timber and Grazing Miscellaneous	348.77	984.38	317.00	7.50	13.00	1,670.65
	$31,995.30	$130,983.30	$24,887.56	$3,667.23	$4,937.62	$196,471.01

N.B.—Monies which were paid direct to Head Office have been allocated to the Agency concerned.

STATEMENT "F".

GOVERNMENT OF THE PROVINCE OF ALBERTA

DEPARTMENT OF LANDS AND MINES

Mining Lands Branch

STATEMENT OF CASH RECEIPTS, APRIL 1st, 1931, TO MARCH 31st, 1932

	Calgary	Edmonton	Leth–bridge	Grande Prairie	Peace River	Total
Coal Rentals, Fees, etc.	$ 63,183.92	$ 54,304.13	$14,248.82	$ 178.24	$ 50.00	$131,965.11
Coal–Mining Royalty	54,830.68	43,519.73	44,629.44	75.95	66.75	143,122.55
Petroleum and Natural Gas:						
Fees, Rentals, etc.	23,146.00	4,756.10	29,147.68	.....	662.09	57,711.87
Royalties	102,738.39	237.53	3,127.13	.....	.....	106,103.05
Cash Bonds	1,152.80	.....	3,457.60	.....	.....	4,610.40
Quarrying Lease Fees and Rentals	1,051.34	758.06	128.51	.....	217.46	2,155.37
Miscellaneous	1,114.40	570.63	531.58	13.00	20.00	2,249.61
	$247,217.53	$104,146.18	$95,270.76	$ 267.19	$1,016.30	$447,917.96

N.B.—Monies which were paid direct to Head Office have been allocated to the Agency concerned.

STATEMENT "G".

GOVERNMENT OF THE PROVINCE OF ALBERTA

DEPARTMENT OF LANDS AND MINES

School Lands Branch

	Calgary	Edmonton	Lethbridge	Grande Prairie	Peace River	Administration Office	Total
Sales: Principal	$ 21,027.15	$15,633.15	$ 5,398.22	$ 1,753.37	$ 135.96	.....	$ 43,947.85
Sales: Interest	21,289.00	30,466.16	3,300.92	2,108.36	1,687.16	.....	58,851.60
Cultivation Permits	932.22	367.87	279.00	.....	8.50	.....	1,587.59
Surface Rentals	40.00	.....	.....	.....	.....	.....	40.00
Special Leases	23.97	22.00	35.19	.....	50.00	.....	131.16
Timber Fees, Dues, Royalty, etc.	313.92	8,462.64	.....	1,125.24	25.77	.....	9,927.57
Grazing Fees, Rentals, etc.	12,287.23	4,313.48	5,235.51	764.46	724.87	.....	23,325.55
Hay Fees, Dues, etc.	77.50	514.75	9.75	80.75	97.75	.....	780.50
Coal Rentals, Fees, etc.	3,111.31	160.00	2,516.90	.....	.....	.....	5,788.21
Coal Mining Royalty	2,184.99	37.90	4,131.20	.....	.....	.....	6,354.09
Petroleum and Natural Gas:							
Fees, Rentals, etc.	2,956.34	1,086.74	4,070.85	.....	342.01	.....	8,455.94
Royalties	383.60	.....	.....	.....	.....	.....	383.60
Reg. and Assignment Fees	88.50	149.00	21.00	15.00	10.00	.....	283.50
Interest on Bank Balance	.....	.....	.....	.....	.....	$4,115.64	4,115.64
Miscellaneous	61.00	.....	3.00	.....	.....	.....	64.00
	$64,776.73	$61,213.69	$25,001.54	$5,847.18	$3,082.02	$4,115.64	$164,036.80

N.B.—Monies which were paid direct to Head Office have been allocated to the Agency concerned, wherever possible.

STATEMENT "H".

GOVERNMENT OF THE PROVINCE OF ALBERTA

DEPARTMENT OF LANDS AND MINES

Alberta School Lands Trust Fund

BALANCE SHEET—MARCH 31st, 1932

ASSETS

Cash in Bank		$ 26,801.16	
Investments:			
Dominion of Canada Debenture	$9,564,569.20		
Dominion of Canada Bonds	50,240.00		
		9,614,809.20	
Accrued Interest		313.42	
Accounts Receivable:			
Undue Principal	$5,862,277.70		
Arrears Principal	2,632,533.37		
		8,494,811.07	
			$18,136,734.85

LIABILITIES

Alberta School Lands Trust Account	$18,136,725.81	
Suspense	9.04	
		$18,136,734.85

STATEMENT "I".

GOVERNMENT OF THE PROVINCE OF ALBERTA

DEPARTMENT OF LANDS AND MINES

Alberta School Lands Sales

REVENUE ACCOUNT

FOR THE PERIOD APRIL 1st, 1931, TO MARCH 31st, 1932

Arrears interest as at March 31st, 1932	$1,676,344.42	
Interest charged during period	669,849.30	
Cash collections during period		$ 58,851.60
Interest on cancelled sales written off		59,327.57
Arrears interest as at March 31st, 1932		2,228,014.55
	$2,346,193.72	$2,346,193.72

STATEMENT "J".

GOVERNMENT OF THE PROVINCE OF ALBERTA

DEPARTMENT OF LANDS AND MINES

Forestry Service

STATEMENT OF CASH RECEIPTS

FROM APRIL 1st, 1931, TO MARCH 31st, 1932

LAND PATENTS BRANCH:	
Surface Rentals	$ 1,813.21
TIMBER AND GRAZING BRANCH:	
Timber Fees, Dues, Royalty, etc.	26,273.29
Grazing Fees, Rentals, etc.	10,394.88
Hay Fees, Dues, etc.	264.25
Miscellaneous	3,440.98
FISHERIES BRANCH:	
Angling Permits	1,342.25
	$43,528.86

STATEMENT "K".

GOVERNMENT OF THE PROVINCE OF ALBERTA

DEPARTMENT OF LANDS AND MINES

Fisheries Service

STATEMENT OF CASH RECEIPTS

FROM APRIL 1st, 1931, TO MARCH 31st, 1932

Angling Permits	$13,235.25
Fishing Licenses	5,495.00
Sundry	130.97
	$18,861.22

STATEMENT "L".

GOVERNMENT OF THE PROVINCE OF ALBERTA

DEPARTMENT OF LANDS AND MINES

Administration of the Mines Act

STATEMENT OF CASH RECEIPTS

FROM APRIL 1st, 1931, TO MARCH 31st, 1932

Certificate Fees	$1,286.55
Sale of Report Books	1,036.35
Coal Sales Act, Registration Fees	31.00
Coal Leases (Road Allowances) Rental	535.00
Coal Leases (Road Allowances) Royalty	2,047.78
Examination Fees	1,061.00
Miscellaneous	1,273.60
	$7,271.28

STATEMENT "M".

GOVERNMENT OF THE PROVINCE OF ALBERTA

DEPARTMENT OF LANDS AND MINES

Homestead Entries Granted

FROM APRIL 1st, 1931, TO MARCH 31st, 1932

	Homesteads	Second Homesteads	Soldier Grants	Total	Entries to Women
Edmonton Land Agency	2,223	324	19	2,566	698
Calgary Land Agency	91	28	3	122	42
Lethbridge Land Agency	21	9	....	30	8
Grande Prairie Land Agency	568	96	3	667	275
Peace River Land Agency	973	65	5	1,043	498
	3,876	522	30	4,428	1,521

Had Previous Entry, 411.

STATEMENT "N".

GOVERNMENT OF THE PROVINCE OF ALBERTA

DEPARTMENT OF LANDS AND MINES

Statistical Summary of Nationalities

FROM APRIL 1st, 1931, TO MARCH 31st, 1932

Country of Origin:	No. of Entries.	No. of Souls.
Canada	1,649	4,559
England	225	671
Scotland	109	383
Ireland	39	138
Wales	13	28
United States	733	2,664
Australia	1	10
Austria	98	443
Belgium	11	36
British Guiana	1	2
Czechoslovakia	50	156
Denmark	38	116
Esthonia	1	1
Finland	10	26
France	16	60
Galicia	1	6
Germany	80	244
Greece	1	1
Holland	13	34
Hungary	43	152
Iceland	1	1
India	2	2
Italy	9	24
Yugoslavia	13	38
Lithuania	18	30
Newfoundland	2	3
Norway	87	268
Poland	332	1,024
Roumania	76	348
Russia	92	385
South Africa	1	1
South America	2	7
Sweden	62	166
Switzerland	8	18
Turkey	1	2
Ukrainia	38	122
	3,876	12,169

ANNUAL REPORT

OF THE

Department of Lands and Mines

OF THE

PROVINCE OF ALBERTA

FOR THE

Fiscal Year ended March 31, 1933

PUBLISHED BY ORDER OF THE LEGISLATIVE ASSEMBLY

EDMONTON:
PRINTED BY W. D. McLEAN, KING'S PRINTER
1934

To the Honourable W. L. Walsh,
Lieutenant-Governor of the Province of Alberta.

SIR:

I have the honour to submit herewith the report of the Department of Lands and Mines for the fiscal year ended March 31st, 1933.

I have the honour to be, Sir,

Your obedient servant,

R. G. REID,
Minister of Lands and Mines.

EDMONTON, October 23rd, 1933.

TABLE OF CONTENTS

Page

REPORT OF THE DEPUTY MINISTER 9

I—PROVINCIAL LANDS ADMINISTRATION

Report of the Edmonton Land Agency 28
Calgary Land Agency 30
Lethbridge Land Agency 32
Peace River Land Agency 33
Grande Prairie Land Agency 35

II—TECHNICAL DIVISION

Report of the Technical Division 37

III—GRAZING

Report of the Supervisor of Grazing 41

IV—PETROLEUM AND NATURAL GAS

Report of the Director of Petroleum and Natural Gas 44

V—FORESTRY

Report of the Director of Forestry 74

VI—FISHERIES

Report of the Director of Fisheries 133

VII—ACCOUNTING DIVISION

Report of the Acting Accountant 149

CHIEF OFFICERS,
DEPARTMENT OF LANDS AND MINES
March 31st, 1933

Honourable R. G. Reid	*Minister of Lands and Mines*
John Harvie	*Deputy Minister of Lands and Mines*
T. C. Rankine	*Departmental Solicitor*
D. H. Boles	*Director of Lands*
W. Calder	*Director of Petroleum and Natural Gas*
T. F. Blefgen	*Director of Forestry*
R. T. Rodd	*Director of Fisheries*
A. A. Millar	*Chief Inspector, The Coal-mines Regulation Act*
I. N. McKinnon	*Acting Accountant*
J. W. Stafford	*Agent, Edmonton Land Agency*
M. Gossip	*Agent, Calgary Land Agency*
R. Cruickshank	*Agent, Lethbridge Land Agency*
A. B. Spence	*Agent, Peace River Land Agency*
J. J. E. Clarke	*Agent, Grande Prairie Land Agency*
R. J. Dean	*Inspector of Revenue*
F. W. Neilson	*Chief Timber Inspector*
T. W. Dalkin	*Technical Division*
A. Helmer	*Supervisor of Grazing*
J. L. Irwin	*Statistician*

REPORT

OF THE

Department of Lands and Mines

1932-33

Honourable R. G. Reid,
Minister of Lands and Mines,
Edmonton.

SIR:

I have the honour to submit the third annual report of the Department of Lands and Mines for the fiscal year ended March 31st, 1933.

The information as detailed throughout the following pages will evidence the fact that during this year there was little change in the industrial and economic situation as it affected this Department.

It will be noted in the Accountant's section of the report that there exists a decrease of $52,242.91 in comparison with last year's figures regarding the question of surplus on income account, the surplus this year standing at $289,616.15 as compared with $341,859.06 for the preceding period.

There are, however, a few improvements in the general situation which are noticeable. Interest collections on school lands, for instance, show an appreciable increase of $104,024.21 over last year. Lumber manufactured from timber cut on licensed and permit berths together with timber sales on forest reserves report a fairly substantial increase. This particular improvement is largely due to the fact that exhaustion of carry-over supplies in retail yards, which existed towards the end of the previous year, created the necessity for operators to replenish their stocks on hand. The report on petroleum production, though showing a decrease, discloses at the same time the prospect of a much wider development programme in the near future regarding the output of crude oil.

PROVINCIAL LANDS ADMINISTRATION

School Lands Purchases.—An amendment to The Provincial Lands Act, favourable to holders of school lands on sales contracts, which was under arrangement towards the close of the fiscal year, became effective in April, 1933. This amendment gave to the holders of such lands, who had become seriously in arrears in the matter of principal and interest, a prior right of giving up their sales contracts originally secured from the federal Government and retaining the land under a cultivation permit of one year, renewable for still another year following which a six-year lease would be granted which in turn would be renewable at expiration for a similar

period, such lease being on a crop share basis with an annual rental of four cents per acre on uncultivated area.

Purchased Homesteads and Pre-emptions.—A further amendment, enacted at the same time as the aforementioned after being given consideration during the period of this report, gave to the holders of purchased homesteads and pre-emptions, who had also got into arrears, the option of surrendering their sales contracts secured under federal administration, and obtaining the land by entry as first or second homesteads by payments of the ordinary fees and compliance with the usual regulations covering residence and improvement duties.

Homestead Entries.—First and second homestead entries and soldier grants during the year reached a total of 3,499 covering an area of approximately 559,840 acres as compared with 4,428 entries and soldier grants with an approximate acreage of 708,480 during the previous fiscal year. The total of 3,499 for this year comprises 3,112 first homesteads, 358 second homesteads and 29 soldier grants. Homestead entries granted to women reached a total of 976 which figure is included in the first homestead total of 3,112. With reference to this last figure showing total of first homesteads, 480 persons had held previous entries which had been cancelled prior to their re-entry in new locations.

The total of 3,112 persons to whom first homestead entries were granted, added to their wives, children and dependents, comprised a grand total of 9,147 souls. Of these, 3,074 (33.60 per cent.) were of Canadian nationality, 967 (10.57 per cent.) were from Great Britain and British Dominions, 1,627 (17.78 per cent.) from the United States, and 3,479 (38.03 per cent.) from other countries, chiefly European.

The total of 3,112 first homestead entries granted during this period, shows a decrease of 764 in comparison with last year's total of 3,876. Likewise the total of 9,147 souls, comprising the persons making first homestead entries together with their wives, children and dependents, shows a decrease of 3,022 from last year's total of 12,169. One of the principal reasons for this decrease was due to the fact that the area in the Calgary and Lethbridge districts south of Township 42 was restricted from settlement. This restriction which was started in September, 1931, continued throughout this period.

Trend of Settlement.—The trend of settlement during the year was in the northern portion of the Edmonton Land Agency district and generally throughout the Peace River area. Homestead entries in the district of the Peace River Agency considerably exceeded, as in the previous year, those of the Grande Prairie Agency. Again, as in the previous year, homestead entries granted to women were more numerous in the two northern districts than elsewhere in the Province.

Statements showing totals of homestead entries and soldier grants together with statistical summary of nationalities for the first three years following the transfer of the natural resources to the Province are given herewith. Fuller details of this information appear in the Annual Reports for these different periods.

HOMESTEAD ENTRIES GRANTED

Fiscal Year	Homesteads	Second Homesteads	Soldier Grants	Total	Homesteads Granted to Women
*1930–31	3,042	557	149	3,748	.....
1931–32	3,876	522	30	4,428	1,521
1932–33	3,112	358	29	3,499	976
TOTALS	10,030	1,437	208	11,675	2,497
Decreases this year in comparison with last	764	164	1	929	545

*Six months to March 31.

NOTE.—Homesteads for women were not available until 1932. The total number as shown in the above statement is included in the first homestead total.

STATISTICAL SUMMARY OF NATIONALITIES

FISCAL YEAR	CANADA		GREAT BRITAIN AND BRITISH DOMINIONS		UNITED STATES		OTHER COUNTRIES		TOTAL	
	Number of homestead entries	Number of Souls	Number of homestead entries	Number of Souls	Number of homestead entries	Number of Souls	Number of homestead entries	Number of Souls	Number of homestead entries	Number of Souls
*1930–31	1,088	2,184 (30.89%)	261	620 (8.77%)	386	948 (13.41%)	1,307	3,317 (46.93%)	3,042	7,069
1931–32	1,649	4,559 (37.46%)	393	1,238 (10.17%)	733	2,664 (21.89%)	1,101	3,708 (30.47%)	3,876	12,169
1932–33	1,237	3,074 (33.60%)	300	967 (10.57%)	456	1,627 (17.78%)	1,119	3,479 (38.03%)	3,112	9,147
TOTALS	3,974	9,817 (34.58%)	954	2,825 (9.96%)	1,575	5,239 (18.46%)	3,527	10,504 (37.00%)	10,030	28,385

*Six months to March 31.

THIS YEAR IN COMPARISON WITH LAST

Decrease	Decrease	Decrease	Decrease	Decrease	Decrease	Increase	Decrease	Decrease	Decrease
412	1,485	93	271	277	1,037	18	229	764	3,022

NOTE: Number of souls includes persons to whom first homesteads were granted together with their wives, children and dependents.

Work of the Technical Division

Issue of Notifications.—The issuance of notifications covering school lands required for right of way purposes by the Northern Alberta Railways Company has been started, these rights of way being included in the sale of provincial-owned railways. The plans have now been received and recorded, but certain information is still required from Ottawa regarding confirmation of the valuation of these tracts. The revision of rights of way of other railways has been effected from time to time, necessitating the recording of new plans and rectifying of titles by the issue of new notifications.

The detailed checking of all homestead entries regarding reservations for railway rights of way, roadways or other patented sections of land was made and the land agencies notified accordingly.

New Surveyed Roadways.—In connection with the reservation of lands required for new surveyed roadways in open Crown lands, considerable correspondence has been transacted between the Technical Division and the Surveys Branch of the Department of Public Works, in which 166 plans affecting a large number of parcels of land have been recorded.

Records.—Applications for leases covering recreational grounds and exhibition sites have been dealt with and in some cases issued. Applications dealing also with power transmission lines, pipe line rights of way and sites of various kinds have also been given necessary attention.

Free grants of land, which had previously been made for religious purposes, have been disposed of in certain instances, it was discovered, for uses other than originally intended. In such cases compensations have been paid to this Department and the release of the habendum clauses issued.

A considerable amount of work has been entailed in connection with tax recovery lands transferred to this Department by the Department of Municipal Affairs. Plan records are now in process of being made covering the various titles, copies of which will be sent to the provincial land agencies.

Dominion of Canada lands have been cancelled into the name of the Province. Patents for Soldier Settlement Board lands are still issued by the Dominion Government, but records in all cases are kept of such patents and particulars of these reservations are sent to Ottawa.

The retention by the Dominion Government of certain lands in the Province at time of transfer of the natural resources has been noted, details of such areas having been delimited upon plan records.

Statistical Maps.—Statistical maps giving complete data on a variety of subjects bearing relationship to the general administration of the Department have been prepared. Plans, sketches and tracings have also been made for record purposes and for departmental use covering leases, surveys and other specialized areas.

Surveys made for this Department have been almost negligible during this period with the exception of the squatter situation in Drumheller where a survey was made and the location of all buildings obtained.

Areas of different types of lands and their usages together with water areas throughout the Province are given in statistical information which has been prepared.

NOTIFICATIONS ISSUED

Fiscal Year	Notifications	Acres
*1930–31	23	3,019.71
1931–32	784	111,424.478
1932–33	1,260	178,887.233
TOTALS	2,067	293,331.421
Increases this year in comparison with last	476	67,462.755

*Six months to March 31.

Grazing

No definite action on applications for grazing lands was taken by the Dominion Government during the period in which the question of the transfer of the natural resources to the Province was pending. After the transfer, many of these applications were of long standing and had become affected by changed conditions which necessitated their being closely investigated.

Applications for the lease of revested lands in the dry areas have in the past few years been numerous. So numerous have they become that a certain delay in dealing with them has been unavoidable, particularly as revested lands offer more complications than unattached Crown land areas.

Drought Conditions.—Drought conditions in recent years have seriously checked the growth of grass. With a reduced water supply, over-grazing, particularly in districts near water, has been evidenced. Over-grazing destroys the growth of nutritious grasses and replaces them with weeds. In spite of this danger, however, the cattle country has carried on, though ranchers have been apprehensive of the handicap under which they have been compelled to operate.

Preparation of Stock for Market.—Much of the future welfare of the Province depends upon the growth of grass, one of the most important of all crops. The stock situation at present is such that cattle markets demand a grain finished product, an undertaking only possible for farmers on more valuable land. Skill in breeding and the furnishing of proper types ready for such finishing on farms belong, however, solely to the rancher. This can only be accomplished in any sufficient number on low priced grazing lands. The rancher or producer of today must be an expert working in co-operation with the feeder who prepares the product for market.

Amongst the revested areas now under grazing lease there are many which were formerly broken or cultivated. This has lessened the value of the grass cover very considerably, and many years of favourable seasons are required to improve this situation.

APPLICATIONS AND RENEWALS FOR GRAZING LANDS

Fiscal Year	
1931–32	741
1932–33	259
TOTAL	1,000
Decrease this year in comparison with last	482

Soil Surveys

With the exception of a few minor land reconnaissances under the supervision of the Department of Soils, University of Alberta, no definite soil survey was carried out in the Province during the period of this report.

Petroleum and Natural Gas

The projection of new work in the petroleum and natural gas industry of Alberta towards the close of this period, indicated the possibility of a long awaited and favourable change which would affect the development of these resources. Prior to this, in sympathy with the world-wide stagnation of commercial activities, the industry has marked time for a lengthy period.

Home Production of Crude Oil.—A general betterment in petroleum development conditions will have been reached when it is appreciated that Alberta's imports of crude oil, which approximate one million barrels yearly, may be largely offset by the increase of home production. Crude oil exists in remunerative quantities in certain sections of the Province. The realization that its recovery does not demand the risk of extraordinary capital for individual wells and that such exploitation can be carried out on a profitable basis should result in considerable oil development for the future.

Turner Valley Gas Conservation Board.—The creation of the Turner Valley Gas Conservation Board was effected in April, 1932, with a view to the continuation and completion of the tests previously carried out by the Petroleum and Natural Gas Division. With the assistance of a staff of six engineers who were continuously employed on these tests, the work of the Board was duly completed. A copy of the Board's findings, shown as Exhibit A, appears further on in this report in the Petroleum and Natural Gas section. These findings, which confirmed the initial data procured by the Petroleum and Natural Gas Division, contained also an entire survey of past operations in Turner Valley and made recommendations for future efficient development.

The pro rating recommendations made by the Board in its report were strongly protested by the operators, particularly the independents, at two meetings held, one in Calgary and one by the Agricultural Committee of the Provincial Legislature in Edmonton.

After hearing the operators' views it was decided that no useful purpose would be gained by continuing the tests at public expense. This resulted in the decision that future operation of the field would be in accordance with provincial regulations, subject to the cancellation of the temporary measure which prohibited the drilling of new wells to the limestone. In addition to this, the volume of gas allowed to be drawn from each well was to be increased to forty per cent. in lieu of the twenty-five per cent. as previously specified and the enforcement of regulations respecting the installation of meters was to be carried out.

Necessity for Conservation of Pressure.—It is now generally realized that a continuance of the wasteful methods, which in the

past have dissipated so great a volume of gas and many hundreds of pounds of useful pressure, would be seriously detrimental not only to the future of the field, but also to the success of operations at present in force.

A very useful underground pressure still exists in Turner Valley, and its use on an economic basis will insure a natural propellent for forcing naphtha to the surface. The necessity for its preservation as an economical means of production and as opposed to the alternative of exorbitant and prohibitive expenses which would be incurred by mechanical means is most apparent.

Decline in Production.—A marked decline in total oil production during this period is shown by the comparative statement which follows. Naphtha decrease is principally attributable to the increasing dryness of gas obtained from the older operated wells which strongly emphasizes the contention that future production along the lines of reduced waste is a vital necessity. Only by such consideration can naphtha-producing life of Turner Valley wells be prolonged. The decline in light crude oil is largely due to decreased drilling operations for this particular commodity.

PETROLEUM PRODUCTION

Fiscal Year.	Naphtha (barrels)	Light crude oil (barrels)	Heavy crude oil (barrels)	Total (barrels)
*1930–31	1,496,457	104,183	13,562	1,614,202
1931–32	1,143,875	86,000	16,453	1,246,328
1932–33	810,958	52,238	7,886	871,082
TOTALS	3,451,290	242,421	37,901	3,731,612
Decreases this year in comparison with last	332,917	33,762	8,567	375,246

*Under federal administration to October 1st, 1930, and under provincial following that date.

Prospects for Crude Oil Production.—The decreases as shown in the above statement should be remedied in the near future, as a renewal of interest is beginning to be apparent regarding production from crude oil horizons, which should improve the situation. The plugging back of older deep wells to these shallower horizons is also anticipated. Added to this, there is a realization of the decreased operating costs for this form of recovery, all of which factors combine towards the prospect of an early increase in the production of light crude.

The abandonment of producing wells at Ribstone is partly due to the reduction in heavy crude oil. This abandonment is regretted as there was ample evidence that the operation of these particular wells could have been carried on with a profitable revenue from such activity. The same situation occurred at Wainwright, where operations were at a standstill. With each well separately owned there is a real need in this district for some form of single management to ensure economical development in that area.

Athabasca Oil Discovery.—Oil discovery of importance was made during this year near Athabasca. The thickness of the oil sand was considerable, and if found persistent over a large area, this new field may become one of major interest and lead to considerable drilling in that district. Present development of the discovery is postponed, however, as the operating company decided to drill the first well deeper to explore other horizons.

Gas Development.—In gas development, the only work of importance was the completion of two wells at Kinsella. These producers have confirmed the existence of gas in considerable volume and pressure over a large area, and are similar to the discovery well drilled by the Duluth Syndicate.

Examination of Strata Samples.—It was necessary during this period to considerably reduce the examination of strata samples on account of staff curtailment which resulted in complete examinations being made only in new areas.

Graphic Chart.—Included in the Petroleum and Natural Gas section of this report is a graphic chart of oil and gas operations in Alberta and a general statement giving progress of individual wells in the different fields of the Province which are shown under the headings of Exhibits C and D, respectively.

NATURAL GAS CONSUMPTION

Fiscal Year	Cubic feet
*1929–30	23,228,637,000
†1930–31	23,312,006,000
1931–32	18,327,139,000
1932–33	16,061,383,000
TOTAL	80,929,165,000
Decrease this year in comparison with last	2,265,756,000

*Under federal administration.
†Under federal administration to October 1st, 1930, and under provincial following that date.

Forest Service

One of the freest seasons from fires which has ever been known since forest protection was first instituted in the Province was experienced this year. In reduced numbers of fires and, as a result, reduced totals of losses, together with a general reduction in the cost of fire suppression, the season proved to be a most satisfactory one.

Timber Industry.—Timber industry, though not extensive in size, was nevertheless noticeable in the number of small operations which took place and which kept inspectors busy. An easier year from the viewpoint of forest protection, added to changes in organization which introduced additional work in the matter of timber inspection during this period, enabled these particular inspections to be properly carried out on lands outside the boundaries of the reserves.

Unemployment Camps.—Unemployment relief camps were continued on a medium scale in two of the forest reserves. The work has been practically continuous since the fall of 1930, the number of camps varying from year to year.

Area of Forest Reserves.—An approximate area of 162,234.69 square miles is now taken up by the forest reserves of the Province. This figure is made up as follows:

	Square Miles
Cypress Hills and Rocky Mountains forest reserves	14,409.69
Northern Alberta forest district	147,825.00
TOTAL	162,234.69

The greater percentage of area within the boundaries of the reserves is absolute forest land, and therefore suitable only for the growing of trees. The practice of forestry in its various branches is therefore the first concern throughout these districts, and protection in the matter of fire prevention and fire suppression is particularly emphasized as a result.

Northern Alberta Forest District.—The Northern Alberta forest district, however, presents a different situation. Many land areas in this large territory are suitable for agricultural purposes though bearing at the present time stands of timber in varying stages of growth. Again, a large percentage is useful only for the growing of trees, and is in need therefore of protection in fire prevention and suppression. Similar protection is equally needed for those tracts now covered with valuable timber stands, but which eventually will be suitable for agriculture.

In an area as immense as this particular district, presenting as it does the dual problems of forest protection and agricultural development, the situation is one of great responsibility.

The encroachment of settlers upon the borders of timbered tracts is of necessity an element of danger to the timber. In the general process of settlement, it is perhaps only natural that there should be a lack of forest consciousness. The problem points to the encouragement and assistance of the settler without doing so at the expense of endangering the safety of a very necessary and extremely valuable natural resource.

Number of Fires.—Fires during the year numbered 379, which burned over an area of 136,117.89 acres, of which 68,253.42 acres were non-forested lands. Total loss of timber amounted to $160,151.31, with a total cost in fire suppression of $18,811.55.

SUMMARY OF FIRE LOSSES WITHIN ALBERTA FOREST RESERVES

Period	Number of fires	Cost of Suppression	Area (In acres)	Salvable timber (M. f.b.m.)	Salvable timber (Cords)	Unsalvable timber (M. f.b.m.)	Unsalvable timber (Cords)	Total Loss
October 1, 1930 to March 31, 1931	9	$ 551.67	41.925	.....	.....	2.00	129.00	$ 71.69
April 1, 1931 to December 31, 1931	31	17,624.12	52,218.05	2,370.5	3,086	6,295.73	111,599.00	154,651.47
January 1, 1932 to December 31, 1932	32	3,491.04	2,555.75	8.00	15,863	3,845.00	1,005.60	8,790.73
TOTAL	72	$ 21,666.83	54,815.725	2,378.5	18,949	10,142.73	112,733.60	$ 163,513.89

SUMMARY OF FIRE LOSSES OUTSIDE ALBERTA FOREST RESERVES

October 1, 1930 to March 31, 1931	47	$ 686.64	11,145.19	155.00	.....	3.75	.....	$ 79,950.85
April 1, 1931 to December 31, 1931	591	82,088.89	552,658.07	134,536.00	104,199	122,690.5	684,625.5	712,835.79
January 1, 1932 to December 31, 1932	347	15,320.51	133,562.14	274.75	12,215	40,627.15	132,743.00	152,085.58
TOTAL	985	$ 98,096.04	697,365.40	134,965.75	116,414	163,321.40	817,368.50	$ 944,872.22

SUMMARY OF FIRE LOSSES WITHIN AND OUTSIDE ALBERTA FOREST RESERVES

October 1, 1930 to March 31, 1931	56	$ 1,238.31	11,187.115	155.00	.....	5.75	129.00	$ 80,022.54
April 1, 1931 to December 31, 1931	622	99,713.01	604,876.12	136,906.5	107,285	128,986.23	796,224.5	867,487.26
January 1, 1932 to December 31, 1932	379	18,811.55	136,117.89	282.75	28,078	44,472.15	133,748.60	160,876.31
TOTAL	1,057	$119,762.87	752,181.125	137,344.25	135,363	173,464.13	930,102.10	$1,108,386.11

FORESTRY REVENUE

Fiscal Years	*1930–31	1931–32	1932–33	Total	This year in comparison with last	
					Increase	Decrease
Timber permits	$ 6,159.32	$ 9,358.17	$ 6,096.73	$ 21,614.22	.....	$ 3,261.44
Timber seizures	5.00	105.46	23.80	134.26	.....	81.66
Timber sales	18,416.68	16,809.66	9,748.78	44,975.12	.....	7,060.88
Grazing permits	3,416.79	10,394.88	12,098.99	25,910.66	$ 1,704.11	.....
Hay permits	.....	264.25	208.00	472.25	.....	56.25
Fishing permits	.....	1,342.25	1,087.50	2,429.75	.....	254.75
Surface rentals	1,631.84	1,813.21	1,971.28	5,416.33	158.07	.....
Miscellaneous use permits	.....	818.08	805.90	1,623.98	.....	12.18
Sundry revenue	218.98	2,622.90	721.35	3,563.23	.....	1,901.55
TOTAL	$29,848.61	$43,528.86	$32,762.33	$106,139.80	Net Decrease	$10,766.53

*Six months to March 31.

NOTE.—In 1930–31 year, timber permits, $6,159.32, and timber sales, $18,416.88, are included in Annual Report for that period in total under the heading "timber permits, sales, etc."

In 1931–32 year, timber sales total of $16,809.66 includes application and guarantee deposits. Sundry revenue total of $2,622.90 includes sale of maps. These items are shown separately in Annual Report for that period.

Forest Nursery.—Since the fall of 1931 a successful forest nursery has been in operation at the Oliver farm near Edmonton. It was started by the moving of spruce and pine stock, developed to the transplanting stage, from the Cooking Lake forest reserve to Oliver.

The planting of approximately 4,550 four-year-old lodgepole pine, 2,700 four-year-old larch, 59,200 four-year-old white spruce and 175,000 two-year-old white spruce was put into effect. About half of this stock will be ready for distribution in the spring of 1934 with a small quantity available at an earlier date.

In response to over 1,000 applications, which were mostly received from farmers throughout the Province, approximately 700,000 caragana plants were distributed during this period from the Oliver farm.

Grazing on Forest Reserves.—Grazing on forest reserves during the year was most satisfactory. A large area was used to capacity, and south of the Crowsnest Pass a local demand for sheep range was developed. North of the Bow river valley there is range to accommodate a large number of livestock, but this territory at present, due to prevailing conditions of the livestock industry is partially or wholly unutilized.

FOREST RESERVES GRAZING REPORT

Fiscal Year	Number of Permits	Revenue	Number of Horses	Number of Cattle	Number of Mules	Number of Sheep
*1930–31	92	$ 3,717.75	1,600	5,346	1	.....
1931–32	456	10,394.88	3,417	15,041	....	4,379
1932–33	606	12,098.99	3,377	20,086	....	7,465
TOTALS	1,154	$26,211.62	8,394	40,473	1	11,844
This year in comparison with last	Increase 150	Increase $ 1,704.11	Decrease 40	Increase 5,045	....	Increase 3,086

*Six months to March 31.

Lumber Manufactured.—Lumber manufactured from timber cut by holders of licensed and permit berths on provincial lands totalled 45,375,413 feet, board measure, to which there was added 277,631 feet, timber procured from school lands berths, whilst timber cut from timber sales on forest reserves scaled 2,372,779 feet, board measurement.

The increase of 8,813,343 feet over last year, shown in the following comparative statement under licensed and permit berths, is due principally to the exhaustion of carry-over supplies from previous years which created the necessity for the re-stocking of lumber yards.

In the same statement, under the heading of timber cut from timber sales on forest reserves, a large increase of 1,564,779 feet is shown. It will be noted that this year's total is similar to the six months period of 1930-31, but that between these periods there is a considerable decrease for 1931-32. The explanation is due to the fact that operations were very small in 1931-32, but in 1932-33 new sales were opened up and some of the old ones were again operated.

LUMBER MANUFACTURED

Fiscal Year	Licensed and permit berths on provincial lands (F.B.M.)	School lands berths (F.B.M.)	Timber cut from timber sales on forest reserves (F.B.M.)
*1930–31	20,002,746	627,534	2,849,528
1931–32	36,562,070	1,454,022	808,000
1932–33	45,375,413	277,631	2,372,779
TOTALS	101,940,229	2,359,187	6,030,307
	(Increase)	(Decrease)	(Increase)
This year in comparison with last	8,813,343	1,176,391	1,564,779

*Six months to March 31.

Fisheries

The absence of any change in economic conditions continued to adversely influence the disposal of commercial fish for export during this period. Angling conditions, however, were good and trout fishing in the various streams of the Province was carried out with satisfactory catches.

Commercial Production.—Commercial fishing showed a reduction of 682,766 pounds representing a drop of $21,488.35, value to fishermen, and $59,119.37, value as marketed. Prices were unsatisfactory, and it was a most difficult year for the trade. Heavy competition in lake trout production from the Great Lakes almost eliminated the eastern market, which resulted in Lake Athabasca fishing being kept down to a minimum. Lesser Slave Lake, ranking second in the Province as a commercial producer of whitefish, also showed heavy reductions, indicating that little can be hoped for general production on a satisfactory commercial basis until market conditions improve.

A change for the better, however, in local demands helped a little to offset losses in the export trade. At the Edmonton Exhibition a display of provincial food and game fish was shown, which resulted in a noticeable interest being taken and local dealers had difficulties in filling orders. With a radio and lecture campaign, planned in co-operation with the federal Department of Fisheries, to follow, there is every reason to hope, pending a change in the economic situation, that the chief factor to assist commercial fishing will be the increased demand of local markets.

Domestic Fishing.—A decrease in domestic fishing licenses is also shown for this period which may be partly attributable to general conditions and partly to free angling allowed to residents of the Province for certain classes of fish. Free permits for Indian fishing showed an increase. Occasional trouble was experienced by Indian agents in controlling the holders of such permits within the limits of regulations governing these privileges.

Angling.—Angling was especially good in the trout streams of the foothills and also in the Edson district. Favourable reports were received from both areas regarding results obtained from the stocking of rainbow trout.

Irrigation.—Irrigation schemes were carried out with the usual precautions taken by the Fisheries Division in preventing loss of fish. In this particular every co-operation was afforded by the

Water Resources Branch of the Government. Little difficulty was experienced, regarding pollution of waters, from the operations of the Forestry and Petroleum and Natural Gas Divisions.

Restocking.—Restocking of lakes and streams with game fish from the federal hatcheries of Banff, Waterton and Jasper was carried out successfully in co-operation with the federal Department of Fisheries, the National Parks Branch and the superintendents of the hatcheries.

Arrangements for next year's operations have been made whereby an increased number of game fish eggs, at less cost to the Government through closer co-operation, will be planted. This will mean the liberation of 2,650,000 trout fry into provincial waters during the season to follow.

Speckled trout fry will also be planted for the first time in Cold Lake next summer. This innovation, which is to be carried out in co-operation with the Government of Saskatchewan and the Cold Lake Board of Trade, will add very materially to the sporting reputation of that water.

At the Lesser Slake lake whitefish hatchery towards the close of the fiscal year there were 122,000,000 eyed eggs. These eggs and resultant fry are to be disposed of at the beginning of the new season in Whitefish, Newell, Buck and Lesser Slave lakes.

During September and October the fall collection of whitefish eggs for the hatchery was put into effect at Lesser Slave and Whitefish lakes, resulting in 168,000,000 eggs being secured.

Twenty lakes or small bodies of water were examined during the season with a view to their suitability for fish. Sixteen were discovered to be barren and four to contain fish-life. In addition to these examinations, twenty-two additional lakes were stocked for the first time with game or commercial fish. A further allotment of Loch Leven fry was also liberated into Wabamun and Birch lakes with a view to continuing the experiments which should determine as to whether or not this class of fish would exist with pike, perch and whitefish.

TOTAL AMOUNT OF FISH TAKEN BY ANGLING

Fiscal Year.	Game Fish (Trout, Rocky Mountain whitefish and Arctic grayling)	Other Fish (Goldeyes, pickerel, perch and pike)	Total
	lbs.	lbs.	lbs.
*1930–31	.....	1,225,000	1,225,000
1931–32	457,975	1,756,919	2,214,894
1932–33	422,638	1,260,034	1,682,672
TOTALS	880,613	4,241,953	5,122,566
Decreases this year in comparison with last	35,337	496,885	532,222

*Six months to March 31.

TOTAL AMOUNT OF FISH OF ALL CLASSES TAKEN ON DOMESTIC LICENSES

Fiscal Year	Weight (lbs.)
*1930–31	113,200
1931–32	547,078
1932–33	458,000
TOTAL	1,118,278
Decrease this year in comparison with last	89,078

*Six months to March 31.

TOTAL AMOUNT OF FISH OF ALL CLASSES TAKEN ON FREE INDIAN PERMITS

Fiscal Year	Weight (lbs.)
*1930–31	1,130,000
1931–32	736,000
1932–33	860,000
TOTAL	2,726,000
Increase this year in comparison with last	124,000

*Six months to March 31.

NOTE.—The decrease in Indian permits for the year ending March 31st, 1932, as compared with the preceding year, is due to the withdrawal of these privileges to half-breeds. This became effective on October 1st, 1930, the date on which the natural resources of Alberta were transferred to provincial control.

TOTAL AMOUNT OF FISH TAKEN FOR COMMERCIAL PURPOSES AND ITS VALUE

Fiscal Year	Weight (lbs.)	Value to Fishermen	Value as Marketed
*1930–31	1,851,848	$ 70,624.00	$ 94,032.00
1931–32	3,337,980	115,928.10	189,927.88
1932–33	2,655,214	94,439.65	130,808.51
TOTALS	7,845,042	$280,991.75	$414,768.39
Decreases this year in comparison with last	682,766	$ 21,488.45	$ 59,119.37

*Six months to March 31.

TOTAL AMOUNT OF FISH OF ALL CLASSES TAKEN BY ANGLING AND NETS

Fiscal Year	Angling (lbs.)	Domestic fishing (lbs.)	Indian fishing (lbs.)	Commercial fishing (lbs.)	Total (lbs.)
*1930–31	1,225,000	113,200	1,130,000	1,851,848	4,320,048
1931–32	2,214,894	547,078	736,000	3,337,980	6,835,952
1932–33	1,682,672	458,000	860,000	2,655,214	5,655,886
TOTALS	5,122,566	1,118,278	2,726,000	7,845,042	16,811,886
This year in comparison with last	Decrease 532,222	Decrease 89,078	Increase 124,000	Decrease 682,766	Decrease 1,180,066

*Six months to March 31.

SUMMARY OF CONFISCATIONS AND PROSECUTIONS FOR INFRACTIONS OF FISHERIES REGULATIONS

Fiscal Year	Confiscations	Prosecutions
*1930–31	29	27
1931–32	40	68
1932–33	68	89
TOTALS	137	184

*Six months to March 31.

FISH CULTURE—COLLECTION OF WHITEFISH EGGS FOR LESSER SLAVE LAKE HATCHERY

Fiscal Year	Eggs Collected
*1930–31	147,225,000
1931–32	148,200,000
1932–33	168,000,000
TOTAL	463,425,000
Increase this year in comparison with last	19,800,000

*Six months to March 31.

FISH CULTURE—PLANTING OF FISH FRY INTO PROVINCIAL WATERS OUTSIDE THE NATIONAL PARKS

Fiscal Year	Game Fish (trout) Number of plantings	Game Fish (trout) Number of fry	Whitefish Number of fry
*1930–31	.....	.....	.....
1931–32	157	2,236,500	114,440,000
1932–33	147	1,960,250	101,700,000
TOTALS	304	4,196,750	216,140,000
Decreases this year in comparison with last	10	276,250	12,740,000

*Six months to March 31.

NOTE.—During the year 1932–33, 20,400,000 eyed whitefish eggs were planted in provincial waters for hatching, which offsets the decrease, shown above, of whitefish fry liberated.

EXAMINATION AND STOCKING OF LAKES AND OTHER BODIES OF WATER

Fiscal Year	Lakes and other bodies of water examined regarding suitability for stocking	Number found suitable	Number found unsuitable	Lakes and other bodies of water stocked during season
*1930–31	.....	.....	.....	.....
1931–32	37	30	7	4
1932–33	20	9	11	22
TOTALS	57	39	18	26

*Six months to March 31.

REVENUE OBTAINED FROM FISHING LICENSES, PERMITS, SALES AND SUNDRIES

Fiscal Year	Revenue
*1930–31	$ 4,849.29
1931–32	18,861.22
1932–33	14,739.60
TOTAL	$38,450.11
Decrease this year in comparison with last	$ 4,121.62

*Six months to March 31.

Coal Production

The total output of coal produced in the Province during the calendar year, 1932, showed an increase of 305,740 tons over the output for 1931. Production during 1932 totalled 4,870,030 tons with a valuation of $13,441,193.00. Included in this total were 2,046 tons produced by farmers under permits granted for their own use.

Disposition of Products.—Coal sold for consumption in this Province reached a total of 1,134,311 tons for the calendar year, 1932. The balance of production was disposed of as follows: Shipped to other provinces in Canada, 1,751,294 tons; shipped for consumption in the United States, 27,366 tons; sold to railway companies, 1,619,921 tons; used for making briquettes, 12,629 tons; used for making coke, 4,591 tons; used under colliery boilers, 179,597 tons; used by colliery railroads, 7,025 tons; put into stock, 44,115 tons; put to waste, 130,528 tons. Tonnage shown as sold for Alberta consumption includes the 2,046 tons produced by farmers for their own use already mentioned.

COAL PRODUCTION

Calendar Year	Tonnage	Valuation
1930	5,755,911	$19,379,000.00
1931	4,564,290	13,415,745.00
1932	4,870,030	13,441,193.00
TOTALS	15,190,231	$46,235,938.00
Increases this year in comparison with last	305,740	$ 25,448.00

A total of 643 persons was examined during the year for certificates of competency as coal-miners. Of this number, 557 were successful.

Samples Tested.—Testing with the Burrell and McLuckie gas detectors was carried out in the various mines throughout the Province during this period, and samples of mine air, taken from mines in the bituminous areas, were forwarded for analysis to the Chemistry Branch of the Department of Mines at Ottawa.

Samples, also, of rock dust for use in bituminous mines were sent to the Provincial Analyst to be tested for silica content, and samples of coal were collected and forwarded to the Research Council of Alberta for analysis.

Disposition of Electrical Power.—Electrical power purchased for the use of Alberta coal-mines during the year totalled 14,875,890 k.w.hrs., distribution of which from the various power companies in the Province was as follows:

	k.w.hrs.	
Big Valley	10,800	Purchased from the Union Power Co., Drumheller.
Drumheller area	3,819,350	" " " " " " "
Carbon area	106,990	" " " " " " "
Edmonton area	781,297	Purchased from the Calgary Power Co.
Gleichen area	900	" " " " " "
Lethbridge area	597,146	" " " " " "
Taber area	9,535	" " " " " "
Camrose area	6,200	" " " " " "
Redcliff area	38,000	Purchased from the city of Medicine Hat.
Crowsnest area	9,505,672	Purchased from the East Kootenay Power Co.
TOTAL	14,875,890	

There was no purchase of electrical power by the mining companies in the Coalspur and Cadomin areas, the mines in these districts manufacturing what power was necessary for their own operations.

ELECTRICAL POWER USED FOR OPERATION OF ALBERTA COAL-MINES

Calendar Year	k.w. hrs.
1930	25,003,606
1931	16,918,625
1932	14,875,890
TOTAL	56,798,121
Decrease this year in comparison with last	2,042,735

Employment Increase—During the month of December, 1932, there were 10,296 persons employed in Alberta coal-mines, an increase of 391 over the corresponding month of last year.

Mines Branch Annual Report.—Statistical information covering Alberta coal-mining activities for the calendar year, 1932, is given in complete detail in the published annual report of the Mines Branch, which appears as a separate publication to this report.

Shale and Clay Mined

During the calendar year, 1932, 8,446 tons of shale and clay were mined, from which 3,444,010 bricks and 182 tons of tile were manufactured. Three shale pits were in operation this year producing shale and clay for use in the manufacture of brick, hollow tile and similar products. Information covering this production is also included in the annual report of the Mines Branch, calendar year, 1932, already referred to.

SHALE MINED—BRICKS AND TILES MANUFACTURED

Calendar Year	Shale mined (tonnage)	Bricks manufactured (number)	Tiles manufactured (tonnage)
1930	67,517	22,007,045	.....
1931	23,855	7,091,080	2,825
1932	8,446	3,444,010	182
TOTAL	99,818	32,542,135	3,007
Decreases this year in comparison with last...	15,409	3,647,070	2,643

Bird Sanctuaries and Public Shooting Grounds

The care of bird sanctuaries and public shooting grounds, upon the transfer of the natural resources to this Province, was placed with the Fisheries Division of this Department. Six large sanctuaries and five small ones in Alberta are under control, and by a general consensus of public opinion they constitute a very real benefit.

The protection of these areas for the specific purpose of creating resting places for great numbers of ducks, geese and other water fowl has been zealously carried out. Public shooting grounds are also established with a view to assuring sportsmen of permanent hunting places during the open seasons.

Individual detailed reports from the various divisions of the Department follow.

Your obedient servant,

J. HARVIE,
Deputy Minister.

October 23rd, 1933.

Provincial Lands Administration

REPORT OF THE EDMONTON LAND AGENT, J. W. STAFFORD

During the fiscal year to which this report appertains, no appreciable difference is apparent in the volume of business transacted at this office. In some branches there is a slight increase, while in others a small decrease appears. On the whole, however, the work performed comprises practically the same amount as in the previous fiscal year. Correspondence has been heavy and applicants calling personally at this office entailed a great deal of work.

The following is a statement of the business handled in this Agency in addition to the collection of ordinary revenue and the transaction of routine work:

Homestead entries granted	2,300
Soldier entries granted	23
Applications for grazing leases	27
Applications for school lands cultivation leases	114
Applications for provincial lands cultivation leases	2
Applications for petroleum and natural gas rights	26
Applications for coal–mining leases	16
Domestic coal permits issued	9
Bar–digging permits issued	6
Certificates of work issued (quartz)	2
Applications for quarrying	5
Placer mining claims granted	4
Quartz mining claims granted	22
Grazing permits issued, school lands	460
Grazing permits issued, provincial lands	75
Timber permits issued	1,257
Permits to operate a saw–mill issued	286
Hay permits issued	625
Number of applications for patent received	529
Number of applications for patent dealt with	969
Number of applications for patent checked for head office	1,755
Number of applications for cancellation received	1,206
Number of entries cancelled	1,633
Number of timber berths on provincial lands, sold	39
Number of timber berths on school lands, sold	4
Number of letters received	41,728
Number of letters dispatched	61,570
Number of stencils cut, 373, pages mimeographed	129,325
Number of translations for this and other Departments	230

Of the homestead entries granted, 2,043 were first homesteads and 257 second homesteads. Homestead entries granted to women accounted for a total of 569.

The following statement sets forth clearly the amount of revenue collected each month with classification thereof:

Month	Lands	Timber and Grazing	Mining Lands	School Lands	Tax Recovery	Total
1932—						
April	$ 2,605.75	$ 8,935.29	$ 15,741.94	$12,122.83	.....	$ 39,405.81
May	3,037.25	9,991.78	4,939.86	5,181.46	$13.00	23,163.35
June	4,208.32	5,965.67	6,196.15	8,736.21	1.50	25,107.85
July	3,818.26	17,150.50	16,534.15	2,403.06	3.00	39,908.97
August	3,012.78	8,810.82	1,504.93	2,544.70	22.08	15,895.31
September	2,406.55	9,952.89	11,116.78	2,397.27	16.00	25,889.49
October	4,520.96	13,677.90	17,690.63	4,498.27	.....	40,387.76
November	3,117.83	4,415.18	4,164.11	6,107.39	.....	17,804.51
December	2,022.82	3,759.41	8,471.65	3,466.92	.....	17,720.80
1933—						
January	2,117.89	6,241.42	17,909.04	1,200.45	.....	27,468.80
February	3,814.65	10,268.08	3,611.77	2,789.94	7.36	20,491.80
March	2,047.97	2,480.40	7,075.46	6,019.03	30.75	17,653.61
TOTALS	$36,731.03	$101,649.34	$114,956.47	$57,467.53	$93.69	$310,898.06

The mining division, with an increase of $10,000.00, is the only one showing an increase in revenue. A decrease is apparent in all the other branches, the total amounting to approximately seven per cent.

These revenues comprise payments on account of land sales, royalties and rentals on coal, petroleum and natural gas leases, rental on grazing leases, fees covering quartz and placer claims, homestead entry fees, payments for the issue of grazing and cultivation permits on school lands and business of a similar nature.

In connection with the coal-mining industry the records indicate thirty-five mines in operation with a total gross production of 1,236,852 tons.

Logging and lumbering operations employed approximately the same number of men as during the last fiscal year, and the records indicate a substantial increase in the manufacture of lumber and railway ties.

The following statement shows the products manufactured by holders of timber berths under yearly licenses and permits:

	License Berths	Permit Berths	School Lands Berths
Feet, board measure, lumber manufactured	37,920,714	7,127,943	277,631
Railway ties	20,487	165,178	.....
Lineal feet piling	.....	560	.....
Lath	3,780,255	82,200	.....
Mine timber, feet	6,710	97,500	.....
Lineal feet logs	.....	2,312	.....

The total amount of lumber manufactured during this fiscal year is shown to be 46,946,953 feet board measure together with 257,998 railway ties; 1,167 miscellaneous permits were issued authorizing the cutting of timber on provincial lands and 90 permits authorizing the cutting of timber on school lands. The quantity of timber authorized to be cut under these permits together with the quantity shown as having been cut thereunder is as follows:

	PROVINCIAL LANDS		SCHOOL LANDS	
	Amount authorized	Amount cut	Amount authorized	Amount cut
Feet, board measure	7,135,671	1,613,280	142,000	7,385
Lineal feet	254,187	164,513	5,898	2,456
Fence rails	1,020,407	9,816	258	.....
Roof poles	228,659	3,847	.....	.....
Fence posts	254,247	25,592	1,400	1,300
Cordwood, cords	1,652	938	763	548
Railway ties	92,755	71,833	500	500
Telegraph and telephone poles.	3,198	6,086	.....	.....
Lineal feet mining timber	307,314	85,895	3,060	.....
Lagging, cords	123	30	.....	.....

One hundred and seven seizures were made of timber cut from provincial lands and 16 of timber cut from school lands as follows:

	Provincial Lands	School Lands
Amount of timber covered thereby:		
Lineal feet logs	80,265	1,781
Feet board measure lumber	2,040,253	50,670
Mine timber, lineal feet	330	.....
Fence posts	5,140	.....
Telephone poles	.....	1,250
Ties	18,156	840
Lath	123,422	.....
Cordwood, cords	373	20

In connection with hay, 406 permits were issued on provincial lands authorizing the cutting of 3,276 tons and under authority of which 2,611 tons were cut. On school lands, 219 permits were issued authorizing a total cut of 1,330 tons in connection with which 1,103 tons were reported as having been cut.

Four seizures were made, covering a total of 63 2/3 tons.

REPORT OF THE CALGARY LAND AGENT, M. GOSSIP

The volume of business in the Calgary office during the fiscal year ending March 31st, 1933, showed no material diminution over the previous year, although the revenue collected was somewhat less.

The general routine work was very heavy and a great deal of correspondence was caused by enquiries regarding the anticipated opening up of land for homesteading together with an increased interest in petroleum and natural gas and matters pertaining to cultivation leases and permits on provincial and school lands.

Owing to the fact that homesteading was discontinued in this district during the previous year, practically no entries were accepted. The entries granted were based on proceedings originating prior to the discontinuation of homesteading.

No applications for cancellation were accepted from the public during the year, but as proceedings were instituted on behalf of the Department in cases where five years had elapsed since the date of entry, a number of such entries were cancelled. In addition, this action was instrumental in inducing settlers, who had held entry for five years or more, to make application for patent or to place themselves in a position to do so.

The following is a statement of the business handled in this Agency during the year, in addition to the collection of revenue and transaction of work of a routine nature:

Homestead entries granted	2
Applications for grazing leases received and checked	45
Applications for petroleum and natural gas leases	5
Applications for petroleum and natural gas permits	2
Cancellations of petroleum and natural gas leases and permits	4,005
Applications for coal leases	22
Domestic coal permits issued	19
Coal leases and permits cancelled	72
Quartz claims granted	5
Placer claims granted	1
Applications for cultivation leases received	158
Grazing permits issued on school lands	757
Grazing permits issued on provincial lands	182
Timber permits issued	154
Cancellations instituted	251
Entries cancelled	171
Applications for patent received	151

The total revenue received at the office during the year amounted to $246,413.09, of which $242,336.39 was applied as shown in the following statement:

Month	Lands	Timber and Grazing	Mining Lands	School Lands	Tax Recovery	Total
1932—						
April	$ 105.50	$ 1,702.86	$ 29,331.59	$ 3,531.22	$ 65.78	$ 34,736.95
May	138.61	1,948.04	13,421.39	1,385.48	43.21	16,936.73
June	179.35	846.75	10,257.94	515.37	123.20	11,922.61
July	317.31	2,703.22	12,628.91	988.36	7.00	16,644.80
August	76.35	1,614.42	11,318.86	517.02	.....	13,526.65
September	13.20	959.47	13,974.17	539.37	.....	15,486.21
October	85.35	2,394.11	27,435.74	1,429.11	.....	31,344.31
November	309.41	1,224.18	15,825.54	2,162.32	10.00	19,531.45
December	188.95	1,087.76	15,791.31	1,403.87	13.00	18,484.89
1933—						
January	87.60	764.80	23,935.57	2,704.10	.....	27,492.07
February	188.35	688.26	13,244.26	1,595.84	59.84	15,776.55
March	103.37	1,186.17	8,832.21	10,174.06	157.36	20,453.17
TOTALS	$1,793.35	$17,120.04	$195,997.49	$26,946.12	$479.39	$242,336.39

The above revenue was chiefly derived from collections on petroleum and natural gas royalties which amounted to approximately $71,749, as compared with $124,665 collected the pre-

vious year. Timber royalties also showed a decrease, but royalties on coal increased from $56,884.94 to $60,690.64.

It is estimated from returns received in the office that the approximate amount of naphtha and crude oil sales from wells operating on provincial lands in this district amounted to 454,367 barrels, while 1,215,038 tons of coal were produced from mines operating under authority of government leases and sales subject to royalty. Settlers mined 151 tons of coal for their own use, and it might be observed that interest in this class of permit is increasing very much from year to year.

There was no activity in placer or quartz mining. In the report covering the fiscal year ending March 31st, 1932, attention was drawn to the activity in the vicinity of the head waters of Fallen Timber Creek in township 29, range 9, west of the 5th meridian. Operations in this area have not led to any discovery, and practically all the claims recorded have now lapsed.

Timber operations were very much curtailed and were practically at a standstill. The following statements show the products manufactured by holders of timber berths under yearly licenses and permits:

	License Berths	Permit Berths
Board measure lumber manufactured	261,167	65,589
Board measure lumber sold	2,289,599	115,853
Railway ties	2,542	973
Mine timber, lineal feet	28,242	5,012
Saw logs cut	3,310	546
Lath	100,150	.....

TIMBER OPERATIONS CONDUCTED UNDER AUTHORITY OF PERMITS ISSUED TO SETTLERS AND OF A MISCELLANEOUS NATURE

	Provincial Lands	School Lands
Permits issued	133	21
Feet board measure	298,711	20,000
Lineal feet building logs	30,993	400
Fence rails	15,987	200
Roof poles	4,654	33
Fence posts	5,200	160
Cordwood, cords	1,016	174
Railway ties	1,610	.....
Telegraph and telephone poles	680	.....
Mining timber, lineal feet	72,804	.....
Shingle bolts	10,000	.....

TIMBER SEIZURES

	Provincial Lands	School Lands
Number	8	1
Amount of timber covered thereby:		
Feet board measure	1,629,211	.....
Saw logs	2,434	.....
Fence rails	800	.....
Railway ties	628	.....
Mine ties	257	.....
Lineal feet mine timber	15,612	.....
Ties	.....	30

HAY PERMITS ISSUED

	Provincial Lands	School Lands
Number	58	45
Tons of hay cut	893	565

REPORT OF THE LETHBRIDGE LAND AGENT, R. CRUICKSHANK

The transactions of this office for the fiscal year ending March 31st, 1933, as shown by the following statement indicate a large volume of work, and although a decrease of revenue is shown in some branches, a considerable increase appears in others. The total revenue derived from the business of this Agency, including payments made direct to the Administration office, almost equals that received during the past fiscal year.

The following outlines the business transacted in addition to the collection of ordinary revenue and work of a routine nature:

Applications for grazing leases	156
Applications for cultivation leases	152
Applications for petroleum and natural gas leases	20
Applications for coal–mining leases	6
Applications for lime, stone, quarrying	1
Applications for placer mining	1
Domestic coal permits	98
Provincial lands grazing permits	250
School lands grazing permits	362
Provincial lands cultivation and grazing leases issued	65
School lands cultivation and grazing leases issued	19
School lands cultivation and grazing permits issued	2
Timber permits on provincial lands	8
Timber permits on school lands	4
Hay permits on provincial lands	14
Hay permits on school lands	7
Gravel permits issued	7
Portable saw–mill berths	1
License berths	1
Number of applications for patent received	59
Number of cancellations instituted	136
Number of entries cancelled	58

No homesteads, second homesteads or soldier entries were granted, this privilege having been discontinued in this Agency on September 5th, 1931. The entries against which cancellation proceedings were instituted cover pre-emptions and homesteads of over five years standing.

The total revenue received at this office during the year was $103,417.30, which was applied under the following headings as shown by monthly distribution:

Month	Lands	Timber and Grazing	Mining Lands	School Lands	Tax Recovery	Total
1932—						
April	$ 11.90	$ 1,655.85	$12,787.10	$ 4,276.03	$1,353.58	$ 20,084.46
May	6.85	976.85	2,741.93	1,255.25	909.08	5,889.96
June	41.75	1,031.71	587.03	1,883.73	698.25	4,242.47
July	59.20	1,248.31	7,142.78	1,416.81	485.75	10,352.85
August	21.25	1,378.06	4,459.49	183.78	207.51	6,250.09
September	243.30	2,886.16	1,002.36	127.35	416.40	4,675.57
October	343.85	1,912.60	10,223.52	1,285.71	263.62	14,029.30
November	672.75	3,211.77	1,086.52	766.23	683.40	6,420.67
December	153.00	1,079.70	1,093.09	347.84	301.20	2,974.83
1933—						
January	275.35	980.28	8,995.91	400.79	205.42	10,857.75
February	165.25	1,110.19	4,687.05	2,060.63	751.99	8,775.11
March	316.48	1,086.23	1,058.93	4,278.67	2,123.93	8,864.24
TOTALS	$2,310.93	$18,557.71	$55,865.71	$18,282.82	$8,400.13	$103,417.30

Increases in revenue appear in the lands, school and tax recovery branches, but the branches of timber, grazing and mining show a decrease. The decrease in the timber and grazing branch is offset by the increase in the tax recovery branch. The mining division decrease is due to the greatly reduced activity in the filing of petroleum and natural gas applications.

Royalty was collected on the sale of 33,261.71 barrels of oil, this being a reduction of almost 25,000 barrels from the previous year.

TIMBER AND HAY PERMITS, TIMBER SEIZURES

	Provincial Lands	School Lands
Timber permits issued	8	4
Cords of wood	12	5
Fence posts	300	800

HAY PERMITS

	Provincial Lands	School Lands
Number of tons of hay, 114	14	....
Number of tons of hay, 33	....	7

TIMBER SEIZURES

	Provincial Lands	School Lands
54 poles	1	....

REPORT OF THE PEACE RIVER LAND AGENT, A. B. SPENCE

The business of this office for the period in question shows a decrease from the preceding year due to the continued depression, but this is partly made up by a marked decrease in expenditure.

The following statement gives a general idea of the business in force as at March 31st, 1933:

Petroleum and natural gas leases and berths covering approximately 26,709.60 acres	74
Quarrying leases	8
Domestic coal permit	1
Grazing leases covering 71,919.40 acres	195
Time sales and school lands sales	209
License berths	9
Portable saw-mill berths	10
Cordwood berth	1
Fire-killed berths	2
Custom saw-mill permits	19

This statement does not include the number of unpatented entries, applications for inspection, cultivation, grazing, hay and timber permits or other matters of a miscellaneous nature outstanding at this time.

During the period of this report the following business has been handled in addition to the collection of ordinary revenue and the transaction of routine work:

Homestead entries granted	653
Second homestead entries granted	53
Soldier entries granted	4
Applications for grazing leases	20
Grazing permits issued, school lands	63
Grazing permits issued, provincial lands	44
Cultivation leases (six years)	2
Timber permits issued	527
Applications for patent received	513
Patents recommended	336
Applications for cancellation received	475
Lands cancelled	806
Custom saw-mill permits	35
Timber berths in operation	26
Coal leases	2
Domestic coal permits	1

The following statement shows the different classes of revenue received during the year:

Month	Lands	Timber and Grazing	Mining Lands	School Lands	Tax Recovery	Total
1932—						
April	$ 1,075.30	$ 523.09	$ 10.75	$ 193.73	.....	$ 1,802.87
May	895.65	879.31	.....	82.90	$ 9.50	1,867.36
June	1,790.60	554.66	.....	11.65	.....	2,356.91
July	1,365.45	645.38	45.00	106.06	12.15	2,174.04
August	1,338.10	317.89	1.00	34.50	3.50	1,694.99
September	1,058.85	258.77	.....	2.25	.....	1,319.87
October	1,021.85	369.50	.....	24.20	.....	1,415.55
November	1,021.29	199.66	.70	1.00	.....	1,222.65
December	658.35	163.74	4.60	100.00	.....	926.69
1933—						
January	624.25	149.74	49.02	50.56	.....	873.57
February	514.25	194.32	4.10	425.40	7.40	1,145.48
March	637.35	422.00	4.60	334.07	11.88	1,409.90
TOTALS	$12,001.29	$4,678.07	$119.77	$1,366.32	$44.43	$18,209.88

The above revenue is made up entirely of cash received in this office in connection with rentals on grazing leases, rentals on petroleum and natural gas, homestead fees, payments on grazing permits, hay and timber permits and other business of a miscellaneous nature. Additional Peace River district revenue, not shown in this report, has been received by the Department in connection with timber berths, petroleum leases, school lands sales and grazing.

Collections have not improved since the previous year, thus necessitating a great deal of correspondence. There has been no petroleum development in the district during this period, and many leaseholders have allowed their leases to be cancelled.

	Provincial Lands	School Lands
Timber permits issued	517	10
Feet board measure	1,915,181	80,513
Lineal feet logs	268,000	9,200
Fence rails	250,343	800
Roof poles	88,850	1,970
Fence posts	110,665	2,120
Cordwood (cords)	3,447	75
Railroad ties	3,625	.....
Piling, lineal feet	20,355	752
Telephone poles	1,994	.....

TIMBER SEIZURES

	Provincial Lands	School Lands
Number	6	....
Account of timber covered thereby:		
Feet board measure	10,000	....
Fence posts	500	....
Lineal feet piling	9,850	....
Railway ties	5,357	....

HAY PERMITS

	Provincial Lands	School Lands
Number	176	48
Tons of hay	1,545	424

HAY SEIZURES

	Provincial Lands	School Lands
Number	4	2
Tons of hay	36	37

REPORT OF THE GRANDE PRAIRIE LAND AGENT, J. J. E. CLARKE

The business transacted at this office during the period of this report shows a decrease in revenue amounting to $3,484.77, which was doubtless caused by the acute world-wide financial situation. Owing to the shortage of money and scarcity of labour, many people, who otherwise would have done so, were unable to take up land. The collection of payments on land sales, rentals and improvements has also been very difficult.

The following gives a general idea of the business in force at this time:

Homestead entries granted	462
Soldier entries granted	2
Improvement payments	109
Applications for cancellation fees	199
Authorities to refile issued	165
Searches and maps	182
Applications for patent received	299
Cancellation proceedings instituted	217
Entries cancelled	315
Custom saw-mill permits issued	27
Grazing permits issued	35
Timber permits issued	586
Hay permits issued	129
Grazing rentals collected	81
Timber excess payments	116
Mining fees	5
Mining rentals	8
Mining royalty payments	21
Letters received	6,282
Letters dispatched	6,899
Land sale payments	20

In addition to the above may be added work of a miscellaneous nature such as timber seizures, hay excess and other sundry transactions.

The following is a statement showing the different classes of revenue received during the period covered by this report:

Month	Lands	Timber and Grazing	Mining Lands	School Lands	Fur Farm	Total
1932—						
April	$ 826.65	$ 994.77	$ 94.65	$ 36.15	$25.00	$ 1,977.22
May	882.10	549.10	45.00	1,081.45	.....	2,557.65
June	1,299.65	378.55	.....	82.87	.....	1,761.07
July	877.60	399.60	4.55	715.16	.....	1,996.31
August	910.75	152.60	.15	375.28	.....	1,438.78
September	647.95	129.37	45.00	67.30	.....	889.62
October	605.50	106.49	50.05	13.00	.....	775.04
November	520.75	224.92	87.45	56.95	.....	899.07
December	376.15	240.01	10.00	382.70	.....	1,008.86
1933—						
January	355.50	153.89	54.30	229.28	.....	792.97
February	164.25	289.26	34.25	72.19	.....	559.95
March	208.10	345.75	20.30	155.13	.....	729.28
TOTALS	$7,674.95	$3,963.71	$445.70	$3,267.46	$25.00	$15,376.82

To this should be added a number of payments on school lands sales made direct to the Department.

The revenue received is made up of homestead entry fees, payments for improvements, land sales, etc., as shown in the schedule of business.

Owing to the very small returns for grain and livestock, payments for both general lands sales and school lands sales were small.

There has been a slight decrease in the number of timber permits issued as compared with the previous year owing, doubtless, to the inability of settlers to pay for sawing. However, as payment can now be made by toll, the issuance of a large number of permits is anticipated.

The demand for local coal continues to increase and the returns received show 2,211 tons mined during the year. The returns for the period ending March 31st, 1933, have not all been received, and as the preceding three months were very cold there will probably be a large increase in these figures when the outstanding reports are obtained.

It will be noticed that there is practically a fifty per cent. increase over the previous fiscal year in the number of applications for patent received. There is only a slight difference in the number of entries cancelled, but there was a large decrease in the number of cancellation proceedings instituted, which is accounted for by the fact that the majority of settlers' wives and daughters filed cancellations during the previous year and in most cases secured the land.

The land office at Grande Prairie was closed as a measure of economy on March 31st, 1933, and the records were transferred to the Peace River office so that the business of both offices could be amalgamated. The staff was moved to Peace River with the exception of two, one being appointed as sub-agent at Grande Prairie and the other transferred to the Department in Edmonton.

	Provincial Lands	School Lands
Timber permits issued	581	5
Feet board measure	3,117,547	30,806
Lineal feet	242,693	600
Fence rails	727,983	.....
Roof poles	145,481	.....
Fence posts	171,450	.....
Cordwood (cords)	770	6

TIMBER SEIZURES

	Provincial Lands	School Lands
Number	6	.....
Amount of timber covered thereby:		
Feet board measure	374,747	.....
Lineal feet logs	700	.....

HAY PERMITS

	Provincial Lands	School Lands
Number	105	24
Number of tons of hay	764	144

Technical Division

REPORT OF THE TECHNICAL DIVISION, T. W. DALKIN

The past year has been notable to the Technical Division for the reason that a great many new duties, during the process of organization, have been added to its jurisdiction. A review, therefore, of these responsibilities, as at present organized, may be of interest.

Legal descriptions were drawn and areas calculated for all notifications (land patents) which covered homesteads, railway rights of way, church sites, school sites, community sites, nuisance grounds, accrued areas, surveyed roadways, private roadways and all other parcels of land granted by the Crown in the Province. A start has been made on the work involved in connection with the issuance of notifications covering the school lands required for right of way purposes by the Northern Alberta Railways Company, these rights of way being included in the sale of provincial-owned railways. Certain information, however, is still required from Ottawa regarding confirmation of valuations of these tracts. The plans have now been received and duly recorded. From time to time the rights of way of other railways were revised, and this necessitated the recording of new plans and the rectification of titles by the issue of new notifications.

All homestead entries were checked with respect to reservations for railway rights of way, roadways and any other patented or alienated portion of land. Where entries were made upon a quarter section affected by rivers, details of the fordableness of same were obtained in order to ascertain whether the entries might be allowed on both sides of the rivers or restricted to one. Final areas of such entries were computed and the land agencies notified accordingly.

Considerable correspondence has taken place between this Division and the Surveys Branch of the Department of Public Works in connection with the reservation of lands required for new surveyed roadways in open Crown lands. Where lands are under sale, the necessary compensation is exacted and notification issued accordingly. In this connection 166 plans affecting a large number of parcels of land have been recorded. Certain roadways have been abandoned and added to the homestead, sale or ranch, as the case may be. If telephone lines are erected on such abandoned roadways then the interests of the Alberta Government Telephones are protected accordingly.

Applications for leases regarding recreational grounds and exhibition sites are dealt with, and in some cases such leases have been issued. Certain Crown lands were discovered to be suitable for park sites, and accordingly applications have been received and provisional reservations made.

Applications are also dealt with in connection with licenses of occupation for power transmission lines and pipe line rights of way, boat-house sites, pier sites, bridge sites, beacon sites and aeroplane

landing bases. In some cases this necessitates the checking and recording of plans in the Division.

In checking over the fiats received from Ottawa it has been discovered that certain free grants of land made for religious purposes have been sold and used for purposes other than originally intended, with the result that certain compensations have been paid into the office and the release of the habendum clauses has been issued.

A great deal of work has been entailed in connection with tax recovery lands transferred to this Department by the Department of Municipal Affairs. The descriptions of lands are being checked and Orders in Council executed, and it is hoped to eventually set up a complete index system for the various titles. Plan records are now in the process of being made, copies of which will be forwarded to the respective land agencies.

All the duplicate certificates of title received from Ottawa covering lands in the name of the Dominion of Canada have been cancelled into the name of the Province, and complete records of such lands and certificates of title have been made.

Patents are still issued by the Dominion Government for Soldier Settlement Board lands in Alberta, but in every case a record is kept of such patents and particulars of these reservations from such lands are forwarded to Ottawa by the Division.

In connection with the transfer of the natural resources to the Province, certain lands were retained by the Dominion Government, and complete details of such areas have been delimited upon the plan records.

Some exchanges of lands in the Tilley East area have been effected in conjunction with recommendations from the Department of Municipal Affairs. Certain other lands have been sold and patented to various drainage and irrigation districts on the application and recommendation of the Chairman of the Drainage Council.

Sets of records are now being compiled on individual township plans from information received from Ottawa. These will show the standing of the lands as set forth hereunder:

TIMBER AND FORESTRY: License and permit berths and sales, surface rights and railway leases.

GRAZING: Leases, stock watering reserves, hay permits, special reserves.

MINING: Petroleum and natural gas leases, petroleum and natural gas crown reserves, petroleum and natural gas prospecting permits, tar sand leases, tar sand permits, coal–mining leases, coal surface leases, quarrying leases, quartz and placer leases, patented under–rights.

Index records of the following are still being prepared: railways, transmission lines, roadways, pipe lines, Indian reserves, settlements, townsites, fiats including townsite fiats, temporary and miscellaneous plans.

Special statistical and data maps have been prepared showing various information including forestry reserve boundaries, fire ranging districts, crop share districts, soil surveys, bird sanctuaries, shooting grounds, coal outcrops, park boundaries, school lands sales, ranches, timber areas, location of coal-mines, location of oil and gas wells, location of operating, closed coal-mines and coal leases.

Plans, sketches and tracings have been made for record purposes and for departmental uses relative to timber leases, forestry reserves, grazing leases, accrued land areas, fractional land areas, patented land areas, coal leases, petroleum lease holdings, mine workings, river traverses, soil surveys, fur farming leases, details of complicated areas of lands, roadways and railways.

In addition to the foregoing, the current duties deal with applications for timber, forestry rights, mining, surface rights, etc. In this connection all such applications are checked for reservations and encroachments, areas computed, sketches prepared and legal descriptions drafted for incorporation in the leases which are also plotted on the township plans in their respective records. Partial assignments and amendments of such leases are dealt with in a similar way, also the plan records are adjusted in connection with cancellations.

Surveys required by the Department are executed by the Surveys Branch of the Department of Public Works, but these have been almost negligible in the past year. Reference, however, should be made to the squatter situation in Drumheller, where a survey was made and the location of all buildings obtained. Whilst an actual surveyed subdivision was not made upon the ground, a plan has now been prepared designating by lot and block the various buildings.

This Division undertakes the general drafting of all maps, plans and sketches for the Administration Office, Forestry Division, Mines Branch, Petroleum and Natural Gas Division, Fisheries Division, the Land Agencies and the general public, also the necessary mathematical and planimetric computations of areas in connection with the same.

Statistical information has been prepared covering the area of patented lands in the Province, area of lands under grazing, amount of stock grazed on certain lands, areas of timber lands, water area in the Province, area of school lands, area of surveyed lands in the Province and areas of national parks, forest reserves and Indian reservations.

Through co-operation with the Department of the Interior, Ottawa, the Division is now in possession of a very comprehensive stock of plans to which reference is constantly made, not only by various departments of the Government, but also by the general public.

Quite a large volume of correspondence is still carried on with the Chairman of the Dominion Lands Board in connection with various subjects, and it is felt that this report would be incomplete without an expression of appreciation in return for the prompt and satisfactory attention which has been given in this particular to all inquiries emanating from this Division.

Herewith appended are the number of notifications issued and details of acreages patented for the fiscal year ended March 31st, 1933.

ACREAGES PATENTED BY THE DEPARTMENT OF LANDS AND MINES FOR THE FISCAL YEAR, APRIL 1st, 1932, TO MARCH 31st, 1933

	Notifications	Area, acres
Homesteads	1,012	159,513.38
Sales	69	1,886.10
Second homesteads	2	319.00
Soldier entries	61	10,191.39
Purchased homesteads	2	316.90
Pre-emption sales	7	1,120.00
Special grants	18	162.313
Exchange of lands, Tilley East area	7	1,108.05
School lands sales	54	4,051.36
Railway grants:		
Canadian Pacific Railway	2	0.13
Northern Alberta Railways Company	10	73.91
Canadian National Railways	16	144.70
TOTAL	1,260	178,887.233

Grazing

REPORT OF THE SUPERVISOR OF GRAZING, A. HELMER

The following is a report of the operations in this office since its inception in June, 1931.

It should be borne in mind that during the time the question of the transfer of the natural resources from the Department of the Interior was pending, the Dominion land agents continued to receive applications to lease lands in the Province of Alberta. Instructions were issued to the Dominion inspectors to report thereon, but no further action was taken by the Dominion Government. These partly dealt with applications which had originated with the Dominion and were taken over by the Provincial Government. Many of them had been reported on by the Dominion inspectors but, as before mentioned, the Department of the Interior had taken no further action thereon. When they came to the Province, therefore, these reports made by Dominion officials, no longer in the service, could not be approved by this office until the applications which were long outstanding and concerning which conditions had greatly changed, had been investigated and more recent information obtained than that given in the original reports.

During the past few years, many lands having been revested particularly in the dry portions of the Province, a number of settlers who had remained in the dry district began to make applications to lease lands which had become available and to build up around their location a grazing unit. This procedure accounts for the very large number of applications to lease, which, in the past few years, have come to the Department of Lands and Mines for adjustment.

So great in number have been these applications, and so vast a country which they covered, that delay in dealing with them was unavoidable. Investigations covering revested lands offer as a rule more difficulties than those in connection with Crown lands. The complications are greater and the grazing problems of the applicant sufficiently important to demand time being taken to carefully study them so that as far as possible an economic working unit may be arranged in order that the applicant can carry on with some reasonable certainty of success. To arrive at these units it is, in most cases, necessary to study not only the lands applied for, but to search records to learn what lands, if any, may have been available either at the time application was made or since. In short, for reasons given above, the handling of these applications requires time and care if the Department is to be helpful.

As a result of the drought conditions which have been prevailing for some seasons, the growth of the grass has been poor in the "short grass districts." With the water supply lessening, this has brought about over-grazing of the pasture, particularly near the water supply. Over-grazing is a serious matter, and if long continued will undoubtedly result in permanent injury to the range.

The palatable and nutritious grasses are the ones most closely cropped and those most easily destroyed. It is these grasses which give the greatest value to the range. The recorded history of the range is that these grasses, once destroyed, are replaced mostly by worthless weeds.

Grazing control to prevent overstocking is the solution, and for this practice a well distributed water supply is necessary. Its development is worthy of encouragement, and with a suitable supply arranged for grazing may be enforced. The grazing resources of the Province are not exhausted or bankrupt. They were large areas in the first place, and not even badly managed grazing or settlement of lands unfit for farming have exterminated them. They are, however, in danger.

Grass is the most important of all crops when the future welfare of the Province is considered. Today, cattle, if they are to find a market, must be grain finished. They must be of a type to meet the market requirements. That type in any sufficient number can only be bred and raised on the low priced grazing lands of the expert range rancher. Much depends on his skill in breeding and furnishing the type which can be finished on the farms made up of more expensive lands and small pastures where there is an abundance of grain and other fodder. It is only from such a source that the feeder can obtain the class of cattle which he can hope to finish with a profit. The producer is an expert. The feeder completes the picture. Therefore they are necessary to each other.

The stockman is subject to ever-changing conditions, climatic, financial, and market requirements. To succeed he must be ever on the alert. His investments are large and his hazards great, his losses at times staggering and his profits on the average small. He uses lands of low value, useless for any other purpose than grazing. He requires large areas of these lands, and as the carrying capacity per head per acre is low and varies with the seasons, his rental should be low. The revenue from these lands should not be the chief consideration, yet the national wealth he produces is so great that this should be given more consideration than revenue.

Many of the revested areas now being leased have in part been broken and cultivated. This has lessened greatly the organic matter and the native grass cover, because of this cultivation, has been completely destroyed. It will require many years of favourable seasons before these formerly cultivated areas are again grass covered. When they are it will probably be with a much inferior vegetation. The present grazing value of these lands therefore is small.

In order to facilitate the adjustment of various matters in connection with the ranching industry it has been necessary to spend considerable time in conference with officials of the Department of Lands and Mines at Edmonton. In addition it has also been necessary to meet ranchers at various points in order to discuss outstanding problems with them. It might further be stated that an endeavour to arrange the work has been made so as to give every assistance possible to ranchers who when visiting Calgary call both at this office and at the office of the local land agent. This

naturally necessitates giving a very large amount of time in discussing their problems and conflicts somewhat with the routine work of the office, but is nevertheless absolutely necessary. Incidentally, it is appreciated by the different persons involved and assists them towards a realization of the efforts the Department is making to secure a true grasp of their difficulties and the steps which are being taken to solve them.

Below is the number of applications received, the number of applications reported on and the miles travelled to make investigations and reports. These figures are for the two fiscal years ended March 31st, 1932, and March 31st, 1933, respectively. Many reports and correspondence in connection therewith have been prepared, although not covered by any application number. Application numbers are therefore not a complete guide to the activities of this office.

REPORTS AND APPLICATIONS FOR THE FISCAL YEAR ENDED MARCH 31st, 1932

Applications received	678
Applications reported on	253
Renewal applications received	63
Renewal applications reported on	5
Special reports	5
TOTAL	1,004

MILEAGE FOR THE FISCAL YEAR ENDED MARCH 31st, 1932

Automobile	5,541 miles
Train	5,796 miles

REPORTS AND APPLICATIONS FOR THE FISCAL YEAR ENDED March 31st, 1933

Applications received	171
Applications reported on	176
Renewal applications received	40
Renewal applications reported on	49
Applications received for additional lands	48
Applications received for additional lands reported on	12
Special reports	21
TOTAL	517

MILEAGE FOR THE FISCAL YEAR ENDED MARCH 31st, 1933

Automobile	12,537 miles
Train	5,448 miles

Petroleum and Natural Gas

REPORT OF THE DIRECTOR OF PETROLEUM AND NATURAL GAS, W. CALDER

The period covered by this report marks the third year of the world depression and, similar to other parts of the world, Alberta has passed through a further trying time in 1932. Many responsible and competent authorities have stated that conditions generally were improving, but the futility of these attempts to predict conditions ahead has become more and more apparent as the years of stagnation have continued.

Development in the oil and gas industry in this Province has consequently been marking time, but latterly there has appeared an increased interest in new work projected and undoubtedly, once it is fully appreciated that the imports of crude oil to Alberta alone approximate one million barrels yearly, also that crude oil can be developed in remunerative quantities in certain parts of the Province without the necessity of risking extraordinary capital expenditure in individual wells, there is every reason to anticipate that there will be considerable oil development here in the future.

Several causes can be cited as retarding development, but the principal reason would appear to be that the investing public, having suffered considerable losses during the speculation period of 1928 to 1930, is withholding its finances. Coupled with the depression and lack of public interest a certain insecurity may also have been created in the minds of investors by the erroneous statements widely circulated to controvert the peaceful endeavours of the Government in directing well operators in the Turner Valley to introduce efficient production engineering methods so as to minimize the enormous waste of gas from that area.

During April, 1932, the Turner Valley Gas Conservation Board was created to continue and complete the tests previously carried out by the staff of this Division. The Board was fortunate in having a staff of six engineers solely and continuously employed on the tests. The results of their findings, which fully confirmed the initial data collected by this Division, were embodied in a very complete report as shown in Exhibit A, and contained an entire survey of past operations in the Turner Valley and recommendations for future efficient development.

The report was submitted to the operators at a public meeting held in Calgary, and was finally given very careful consideration by the Agricultural Committee of the Provincial Legislature. At both meetings the operators, particularly the independents, made strong protests against the pro rating recommendations of the Board being confirmed by legislation. The Agricultural Committee, after hearing the views of the operators, concluded that the full recommendations of the Board would not attain the desired voluntary pool operation of the field for which the Government had been striving. They decided that as the findings were available

for public perusal, no useful purpose would be gained by continuing the tests at the public expense, and that the future operation of the field would be in accordance with the provincial regulations, subject to the cancellation of the temporary measure prohibiting the commencing of new wells with the limestone as the objective; also that the allowed volume of gas to be drawn from each well be increased to 40% in lieu of the 25% allowance in the regulations and finally the enforcement of the regulations in respect to the installation of meters. Copies of the Orders-in-Council confirming these are attached in Exhibit B.

The suspension of drilling permits for deep wells, when introduced, was considered necessary as a temporary restriction until such time as the work of the Turner Valley Gas Conservation Board was published in report form. Upon the report being available for the public the necessity for the restriction no longer applied.

Previous enforcement of the regulations with regard to metering was purposely held in abeyance pending completion of the Board's tests and, therefore, did not require any new legislation. With reference to the cancelling of Section 36, Paragraph A, of the regulations, this also was a temporary measure to facilitate and validate the test work required to be done by the Board.

Considerable expense has been incurred by the Government to obtain all the data possible relating to Turner Valley conditions. The expense, however, was unavoidable, as the information obtained could not have been collected in any other manner. It is satisfactory to note that justification for these efforts is now apparent by a slight improvement in operation. This would indicate that operators have realized that they would be the principal sufferers by a continuance of the wasteful methods that had dissipated a considerable volume of gas and many hundreds of pounds in useful pressure which, if retained in the ground, would have insured a more complete exhaustion of the naphtha from the underground formation than can now be expected. It is to be hoped that these endeavours towards efficiency will be continued with greater vigour as there is still a very useful underground pressure which, if economically used, will insure a natural propellent for forcing to the surface the naphtha which, it is very apparent, will not be possible of production by any of the known mechanical means except at exorbitant and prohibitive expense.

The occasion is opportune to consider the reason for efficient development as applied to the commercialization of natural resources. All over the North American continent a regrettable destruction of these resources was practised for many years. In many instances this destruction was selfish and unscrupulous. During the pioneer stage of development of all countries a certain and extravagant waste could not be avoided, owing to the inexperience of pioneers and lack of any form of control. But, when such waste was continued and no effort made to introduce efficient development, the continuance was criminal. In the working and development of natural resources a certain wastage is unavoidable even where the most efficient engineering methods are practised. Similarly, in most manufacturing processes a certain loss is consequent to processing, but the experienced manufacturer has always been striving to reduce such losses, with the result that in most up-to-

date works the absence of efficient and economic methods can now be classed as negligible.

Early in the century, the enormous wastage which had occurred and which was still occurring in the exploitation of forests both in the U.S.A. and Canada, created considerable discussion, principally owing to the possibility of climatic changes. The agitation created in the U.S.A. led to the United States Federal Government appointing an investigating body to report on all phases of destructive methods occurring in the development of the country. This body eventually became the Federal Conservation Board, and prepared statistics and data upon such methods generally. Amongst others the oil and gas industry was given a great deal of consideration owing to the magnitude of operations, and eventually a special subdivision was created known as the Federal Oil Conservation Board. In the opinion of the writer the title of the original Board and its subsidiaries was and is still misleading, as their appointment was not made with a view to the *halting of development*, but to obtain data on waste and make recommendations for efficient development. A more appropriate title, therefore, would have been that of "Economical Development Board."

Efficient development of oil and gas in other countries outside the American continent has been practised for many years, and waste whether by direct destruction or by permitting water inundation underground was minimized by vigorous Government control. In the oil and gas fields of the American continent strict Government control has never been possible, owing to the diverse ownership of the land and conflicting legal decisions, together with lack of unified legislation. This resulted in an orgy of waste which was introduced into these industries in the early years and has continued and been intensified with time. An ever-increasing greed was also noticeable, an adverse influence which the operation of a natural resource unfortunately appears to develop in the minds of operators and their employees.

Owing to the lack of experienced local labour, operators, developing oil and gas in Alberta, were forced to obtain the necessary personnel for their work from adjoining producing areas in the United States, and as the imported men had been trained under the above mentioned vicious methods of development, similar wasteful practices, when production was obtained in the Turner Valley, were introduced. These, unfortunately, at the time of introduction could not be controlled owing to the inadequacy of the regulations to cover work done on alienated lands. The waste then introduced solely to obtain the naphtha represented a loss of from 150 to 175 thousand cubic feet of gas for each barrel of naphtha recovered. With the gas wasted there was a further loss estimated as ranging from .05 to .25 gallons of naphtha per thousand cubic feet, this loss being due to the poor separation in the well separators, which apparently were inadequate in capacity for the vast quantities of gas taken from the wells.

On obtaining possession of the natural resources in October, 1930, the Provincial Government immediately endeavoured to have tests made which would lead to the introduction of efficient production methods. In introducing these efforts the term "conservation" inadvertently crept into the discussions and at once created in the

minds of the operators and other interested persons, a suspicion that the desire was to curtail development. How unjustified this was must be fully appreciated by all disinterested persons when it is realized that the first endeavour of any governing body would be to foster the development of new industries which would lead to the eventual betterment of the people. To all who have consistently followed the peaceful efforts of the Provincial Government during the past two years to get the Turner Valley operators to combine in a working arrangement, it must be evident that these efforts had only one objective. An objective which would provide efficient and economical development by minimizing wastage and which would retain in the ground sufficient gas to insure that the greatest recovery of naphtha would be obtained without the introduction of expensive and possibly ineffective pumping equipment.

As anticipated in last year's report, there has been a marked decline in the total oil production, particularly in the naphtha, totals for comparison purposes being as follows (Exhibit C):

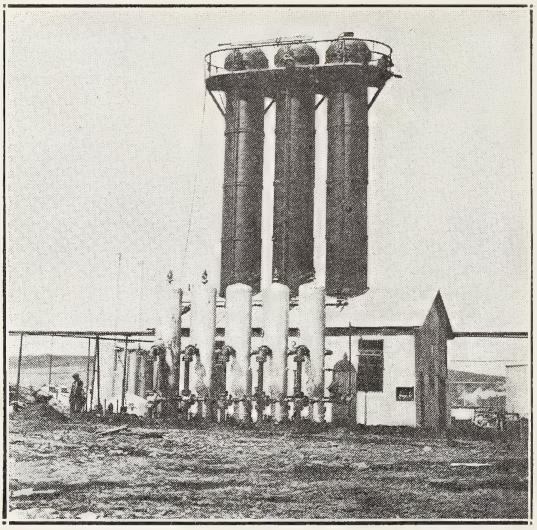
	1931–1932 Barrels	1932–1933 Barrels
Naphtha	1,143,875	810,958
Light Crude	86,000	52,238
Heavy Crude	16,453	7,886
TOTALS	1,246,328	871,082

Part of the decline in naphtha must be attributed to the restrictions of gas flow necessary during the period of the Turner Valley Gas Conservation Board tests which only terminated towards the end of the calendar year. The major portion of the decline, however, must be classed as due to the increasing dryness of the gas obtained from the older operated wells, and fully confirms the necessity for operators being compelled to discover methods of production which will reduce the waste and thereby prolong the naphtha producing life of these at present uneconomically operated wells.

The decline in light crude oil production has also taken place in the Turner Valley, and would appear to be due to no effort having been made in the previous year to commence wells for crude oil. Latterly there has been a renewal of interest in the potentialities of the crude oil horizons, and it is anticipated that as the cost of wells for such production is not excessive, a considerable number of shallow and inexpensive wells will soon be drilled. A further increase in crude oil is expected from deep limestone wells that will be plugged back when their owners fully appreciate the losses they are suffering by operating wells with high and wasteful gas/oil ratios. As an example that such plugging back will be profitable, there can be cited one deep well where the naphtha production was 1,1/3 barrels, representing a gross revenue of $4.00 per day—an amount insufficient to pay the wages of attendants. This well was cemented off in accordance with the regulations and is now producing from the upper horizons a daily production of crude oil averaging 45 barrels and representing a gross monetary value of $135.00 per day.

With regard to the reduction in heavy crude oil, this loss is partly due to the complete abandonment of the producing wells at Ribstone, the late operators contending that the wells could not be

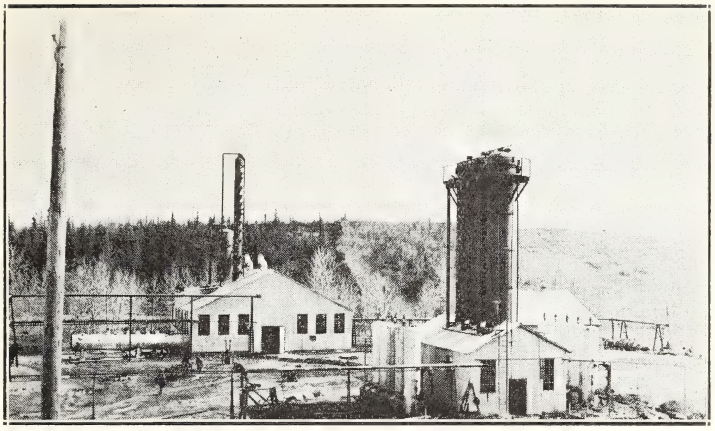
operated profitably. The abandonment of these wells is to be regretted, as there was ample evidence to prove that even if the average production per well did not exceed 25 barrels, this, after the payment of wages and Government royalty, would have represented an annual revenue approximating $5,000.00 per well. Having been abandoned, this area may lie dormant for several years, but it is certain development will be renewed when the foregoing revenue return is appreciated. At Wainwright all classes of field work have been at a standstill, and the production has been negative, although there are completed wells with a gross available production estimated at 120 barrels. Here again it must be stated that although the settled production per individual well may be small—ranging from 12 to 20 barrels—these wells can be operated to give handsome returns. Unfortunately, each well is separately owned, and until some form of single management is introduced, it is certain economical development cannot be obtained.



TURNER VALLEY

Stripping separators and absorption towers.

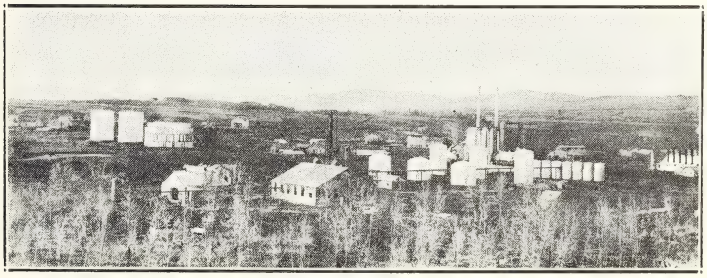
During the winter months the Royalite Oil Company has been erecting a new plant to process the waste gas and recover the naphtha content hitherto unrecoverable in the well separators. The new plant has a daily throughput of 75 million cubic feet and, based on a recovery equal to the average of the quantities lost, or .15 gallons per thousand cubic feet, results of this new processing should amount to 321 barrels per day, or 117,165 barrels per annum.



TURNER VALLEY

Absorption towers and fractionating unit.

The erection of this plant must be classed as a serious endeavour to combat waste, and it is to be hoped that its performance, when in operation, will be such as to encourage similar endeavours in other phases of field operations which will lead to that efficient development of the Turner Valley so much desired by the Government.



TURNER VALLEY

Absorption towers, fractionating unit and gas scrubbing towers.

One of the principal factors which govern the production of crude oil is that of drilling, and if this is not maintained any reduction is quickly reflected in production. Conforming to this, it will be noted in Exhibits C and D that the total footage drilled in the Province was again insignificant. There is a slight increase, however, as compared with 1931-1932, and this must be taken as an indication or forecast of a revival of interest in general prospecting.

Since the completion of the Turner Valley Gas Conservation Board tests considerable new drilling has been projected, all of the new locations being at the south end of the Turner Valley and the

adjoining area further south. Already four new wells are being drilled.

The only new oil discovery of importance was made near Athabasca, where heavy crude was encountered at a comparatively shallow depth. The thickness of the oil sand being very great, the discovery, if the sands are found persistent over a large area, may be classed as one of major interest, and undoubtedly will lead to considerable development work in the Athabasca district. Development of the find, however, is postponed as the operating company decided to drill deeper to explore the prospects of other potential horizons. A similar discovery was made by the same operators in their first well drilled near Smith, where, owing to faulty engineering, the sands became water-logged and the location was abandoned. This first test, however, being remote from rail communications, would have necessitated a great deal of capital expenditure before any product could be marketed. It is questionable if the abandoned area will be further prospected for many years.

In the development of gas, the only work of note was the completion of two wells at Kinsella. These have confirmed, over a large area, similar gas in considerable volume and pressure, to that found in the discovery well drilled by the Duluth Syndicate.

Consumption of natural gas from the various producing gas fields totalled 16,061,383,000 cubic feet.

The inspections by the staff of the Division during the year, in supervising the oil and gas wells within the Province, were 1,724. Of these inspections, 83 were made for special reasons whilst the remaining 1,641 may be classed under the heading of routine. To carry out these inspections journeys by rail and motor-car had to be made extending from Smith or Mirror Landing on the Athabasca River to Waterton Park in the south-west of the Province and to many points extending from the foothills east to the Fourth Meridian.

To maintain accurate records of the strata, water, oil and gas indications encountered during the drilling of wells, the following examinations and analyses were made:

Microscopic examinations of strata samples	3,998
Water analyses	58
Oil analyses	7
Gas analyses	2
TOTAL	4,065

On account of staff curtailment the examination of strata samples has had to be considerably reduced, and the practice now is to make complete examinations of the strata from wells in new areas only. Strata from wells drilled in known territory are only checked at remote intervals during the drilling of formations known to be barren of oil and gas. Close examinations, however, are made after potential productive formations are penetrated so as to discover the exact depths of known marker zones or geological divisions. The necessity of continuous water analysis cannot be over-emphasized, as it is solely by this means that dangerous underground water horizons can be recognized for control and complete isolation so as to prevent inundation of productive oil and gas horizons at lower depths.

Exhibit A.

REPORT OF THE TURNER VALLEY GAS CONSERVATION BOARD.

Introduction

Prior to the passing of The Turner Valley Gas Conservation Act, efforts had been made by the Government to bring about some form of unit operation in the Turner Valley field with the object of curtailing the wastage of natural gas, and the services of Mr. F. P. Fisher, an engineer of high standing, had been retained for that purpose. A Technical Sub-Committee of the Oil and Gas Advisory Committee, consisting of three members, and of which Mr. Fisher was chairman, evolved a plan of voluntary pooling of the properties in the field, and it was then hoped that it would be possible to persuade the various interests concerned to adopt that plan and thus eliminate not only the further wastage of gas, but also a large part of the operating costs of the various producing companies. It was found, however, that the parties interested could not be brought into any agreement, and after a final and fruitless conference of the operators held in Calgary during the last days of the session of the Legislature, The Turner Valley Gas Conservation Act was passed.

The Turner Valley Gas Conservation Act provided for the appointment by the Lieutenant Governor in Council of a Board consisting of not more than three persons, the general object of such Board being the effecting of conservation of gas in the area set out in the Act and for the further purpose of endeavouring to bring about the unified operation of the wells in the field by means of pooling or otherwise.

Forthwith after the appointment, the Board was required to proceed to reduce the gas production in the field to not more than 200 million cubic feet daily. Thereafter, the Board was required to proceed with a series of tests of the wells in the field, the nature of these tests to be determined by the Board, for the purpose of determining the capacity of each well both in regard to gas and naphtha production, the measured value of each well and of any gas or oil rights in any area, and the total gas reserves. The Board was also required to determine the amount of gas necessary to meet the market demands and other requirements and to also determine efficient methods of effecting gas conservation.

Organization and Activities of the Board.

In pursuance of the above Act and by Order in Council No. 362/32 and dated April 23rd, 1932, a Board was constituted, the persons appointed thereto being Dr. R. C. Wallace, President of the University of Alberta; A. A. Carpenter, Chairman of the Board of Public Utility Commissioners, and John McLeish, Director of Mines, Ottawa.

A meeting of the Board was held on April 28th for the purposes of organization, at which meeting A. A. Carpenter was appointed chairman. Offices were secured in the old Telephone Building in Calgary, and the setting up of the necessary staff for carrying out the work set out in the Act was proceeded with. Appointments to the staff were made as follows: Field Staff: C. W. Dingman, G. R.

Elliott, J. O. G. Sanderson, R. V. Johnson, F. W. Shelton. Office Staff: D. S. Pasternack, statistician; Miss P. Darby, stenographer. Arrangements were made with the firm of Harvey and Morrison, chartered accountants, for the services to the Board of Mr. J. S. Simpson for the purposes of accounting.

The services of Mr. F. P. Fisher, the engineer employed by the Government in the endeavour to work out a voluntary pooling of the field, were retained by the Board for a period, for the purpose of organizing the tests to be carried out in the field. On the completion of their organization, Mr. C. W. Dingman was placed in charge of the field staff. The members of the Board, however, were of the opinion that it was advisable, when these tests were got under way, to call in the services of an engineer of wide experience in gas production, operating and pooling problems, who had not had any previous connection with the field, for the purposes of consultation and advice. Accordingly, the Board, about the time of the inauguration of the tests, secured the services of Mr. Frank McC. Brewster, of Bradford, Pennsylvania, who came to the Board with strong recommendations from both the Department of Mines at Ottawa and from the head of the United States Bureau of Mines.

The question of the nature of the tests to be carried out on the various wells in the field had been discussed at the conference held by Dr. Wallace with the operators in Calgary, prior to the enactment of the conservation legislation, and at a meeting of engineers representing the various companies a formula of tests was there evolved. This formula, though it eventually appeared that it did not represent a unanimous agreement amongst the interested parties, might, in the Board's opinion, be expected to yield the data, material for the determination of the various matters to be dealt with. Prior to the adoption of this formula, the Board notified the various operators in regard thereto and asked for their suggestions.

These tests involved the metering of all wells for a certain period, the taking of their closed pressures for a seventy-two hour period, the taking of a ten-day naphtha test with the wells operating at two-thirds of the regional closed in pressure and a gas flow test taken at a pressure of 500 lbs.

There are approximately some ninety producing wells in the field, none of which were, or at the present time are, metered. It was considered impossible to cover with a meter test the whole field at once, but the Board purchased twelve meters and secured thirteen meters on a rental basis, thus putting at its disposal twenty-five meters.

Owing to this limited number of meters, it was found necessary to divide the field for test purposes into four areas, it being the intention that the tests should be made in these areas successively.

Provision was made in the Act that during the time the field tests were being carried on, two or more wells belonging to the same person or two or more wells belonging to different owners, if these owners should agree, might be operated as a unit, if the written consent of the Board were obtained. However, in order to obtain comparative data in the field tests, it was found advisable to maintain the flow continuously from the individual wells, as a

pooling of production of several wells through the operation of a less number thereof, would have the direct effect of disturbing the balance of underground pressures and thus invalidate the data from the comparative point of view. This objection was raised at the outset by a number of operators, and it was decided that operators should maintain their production from the wells which were operating at the beginning of the tests, until these tests were completed.

On May 4th last the Board, in pursuance of the provisions of Section 13 of the Act, issued its Order No. 1, limiting the daily gas production in the field to 200 million cubic feet and restricting each producing well to its prorated allowance, based upon this total production, the order being effective on the 9th day of that month.

Action was immediately taken by Spooner Oils, Limited, to contest the Board's jurisdiction, and similar action was also taken by the Richfield Oil Company, Limited. The latter action was not continued, but the former company was successful in obtaining an interim injunction which, for the time being, effectively prevented the enforcement of not only the conservation measures, but the commencement of the field tests. This injunction was not finally dissolved until June 24th last, when judgment was given in the action in favour of the Board.

An appeal against this judgment was made to the Appellate Division of the Supreme Court, and came on for hearing in October last. The Appeal Court held that the main provisions of the Act were *intra vires*, but that the provisions relating to the levying upon the operators for the expenses of the Board in carrying on its operations, were ultra vires. No levies, however, had been made under these provisions, so that no complications resulted from this finding.

The result of these injunction proceedings was that the tests in the first area could not be proceeded with until the early part of July last, and the completion of the tests in the last area was delayed until November 13th. At the close of the tests referred to, a twenty-four hour closed in pressure test over the whole field was taken, but owing to weather conditions, was not completed until the last week in November.

Literal compliance with the terms of the Act in so far as the completion of the public inquiry, and in so far as the submission of the Board's report is concerned has, as a consequence, been impossible. Apart from this, the field tests have taken considerably more time than originally estimated, while the time required for the assembling of the data obtained in these tests, was apparently not considered when drafting the Act.

The first order was based upon the information available in the office of the Petroleum and Natural Gas Division of the Department of Lands and Mines. As none of the wells in the field were metered, an effort was made in this order to translate the gas allowances into naphtha production so as to afford a ready method of measurement.

The only record of closed in pressures available at that time was that obtained by the Department of Lands and Mines in August, 1931, as a result of a twenty-four hour closed pressure test.

In order to correct as soon as possible any inequalities occurring in its first order, the Board took another twenty-four hour closed pressure test in the early part of last July. A new order, based upon information obtained in this test, was issued on August 4th last, and in this order it was found advisable to abandon the method of measurement by means of naphtha production and adopt a simple gas quota. From time to time this order was varied as a result of the data that became available from the tests in the various areas. It was also necessary as each area came under test to adjust the quotas allowed for the various wells outside the particular test area, and orders were issued from time to time for this purpose. At the close of the tests, the Board issued a new order, numbered 20, based on the data secured in these tests, this order being still in effect.

With the wells unmetered, it has been found extremely difficult to ensure absolute observance of the Board's orders for restriction. During the test periods the Board's field staff was fully occupied, and between these tests the recording of the data derived therefrom left little time available for the policing of the field. As far as possible this was done, but no efficient policing of the field can be accomplished unless meters are placed on all producing wells. Once this is done efficient records can be kept of gas production at all times at comparatively small cost.

Although the field tests were far from complete, the Board deemed it advisable to fix the 30th day of September for the opening of the public inquiry provided for by Section 18 of the Act, but the attention of the interested parties was called to the fact of the incompletion of these tests and the obvious necessity of an enlargement of the hearing. After further adjournments, the date of the public inquiry was finally fixed for the 9th of January of this year, but owing to certain injunction proceedings that had been initiated, the commencement of the actual hearing was delayed until the afternoon of the following day.

Prior to the date mentioned, the Board had sent out to all operators drafts of two alternative plans of conservation which they were asked to consider in order to be in a position to discuss and criticize them at the hearing. When the inquiry proceeded, the Board invited the fullest discussion of these plans and also of the other matters material to the questions involved.

A transcript of the proceedings and of the evidence submitted at the public inquiry is being transmitted along with this report.

General Conditions in the Turner Valley Field.

Before dealing with the question of conservation in any form whatever, it may be advisable to refer to the conditions now existing in the Turner Valley field. A large portion of the field, that which has been closely drilled and where the wells have been operating for a considerable period of time, shows very marked signs of depletion. On the other hand, there is an area in the northern end where the pressures are still high, while in the southern end of the field the wells are comparatively recently drilled and show high pressures and large naphtha production.

It must be borne in mind that, generally speaking, the wells in Turner Valley were not drilled with any idea of obtaining revenue

from gas production. They were drilled with the sole object of obtaining naptha production, and it is doubtful whether, at least until recently, sufficient thought was given to the fact that the gas energy supplies the necessary power to bring any free naphtha into the hole and lift it to the surface, or to the further fact of relative efficiencies of naphtha production at varying gas back pressures. Apart from the Royalite Company, which has a monopoly for the supplying of gas to the Canadian Western Natural Gas, Light, Heat and Power Company, Limited, gas production was considered a necessary and possibly unwelcome accompaniment of naphtha production.

In the depleted area referred to there is a considerable number of wells where the pressures have fallen to the point where only a very small naphtha production is obtained. The gas oil ratios in these wells have steadily grown worse, in many cases running as high as 400,000 cubic feet or more to a barrel of naphtha, while in a few cases the gas oil ratios are so high that the wells should not be treated as other than dry gas wells. Many of these wells, indeed, have reached the stage when their operation as commercial propositions can only be expected to continue for a very short time, and it might be said that, while it is not definitely known at what pressure naphtha production will cease, the period of naphtha production of these wells will be over in another two or three years at the most. In the meantime, they are drawing on the common energy of the whole field, an energy without which naphtha recovery will be practically impossible. Entirely apart, therefore, from the question of wastage of gas as a commodity of value, the conservation of that energy is a matter of vital importance to the field as a whole.

Gas and Naphtha Production in the Field.

The total annual production of gas and naphtha in the field to the end of 1932 and the average daily production of gas and naphtha with average daily gas oil ratios for each month during the years 1930, 1931 and 1932 are shown in the two tables following. The records have been supplied by the Petroleum and Natural Gas Division of the Department of Lands and Mines. The average daily production monthly during the last three years is also shown in graphic form in a chart attached hereto and identified as Appendix "D".

ANNUAL PRODUCTION OF NATURAL GAS AND OF NAPHTHA IN THE TURNER VALLEY FIELD

	Gas 1,000 cubic ft.	Naphtha barrels	Gas Oil ratio
1925	8,760,000	165,717	52.9
1926	8,800,000	211,008	41.8
1927	13,870,000	290,270	47.8
1928	21,320,000	410,623	51.9
1929	61,450,000	908,741	67.6
1930	114,080,000	1,314,039	86.8
1931	169,280,000	1,345,689	126.0
1932	111,080,000	854,116	130.0

AVERAGE DAILY PRODUCTION OF NATURAL GAS AND OF NAPHTHA IN THE TURNER VALLEY FIELD

	1930				1931				1932			
	Naphtha Bbls.	Gas M.c.f.	G /O Ratio	Number Producing Wells	Naphtha Bbls.	Gas M.c.f.	G /O Ratio	Number Producing Wells	Naphtha Bbls.	Gas M.c.f.	G /O Ratio	Number Producing Wells
January	2,646.3	173,220	65	32	5,147.6	519,523	101	74	2,583.4	378,101	146	88
February	2,529.3	172,510	68	32	4,901.8	529,400	108	78	2,571.9	376,954	146	88
March	3,201.9	232,000	72	35	4,512.5	525,755	116	79	2,603.0	406,980	156	88
April	2,768.4	196,610	71	40	4,422.7	547,116	124	79	2,609.3	436,030	167	88
May	2,756.8	180,920	65	44	4,370.0	580,505	133	83	2,496.4	345,267	139	89
June	3,357.3	249,200	74	51	4,216.1	586,630	139	84	2,463.7	327,672	133	90
July	3,234.7	248,500	77	55	3,196.4	423,796	132	85	2,337.2	266,842	114	90
August	3,721.5	373,900	100	58	2,695.5	368,113	137	85	2,212.4	224,245	102	90
September	3,951.4	397,310	100	60	2,761.5	379,400	136	86	2,092.0	234,246	112	90
October	4,840.0	495,945	102	66	2,601.7	367,055	141	86	1,996.2	218,176	110	90
November	4,169.3	480,650	103	66	2,672.6	363,444	136	86	2,015.3	232,655	115	90
December	5,341.3	540,150	101	71	2,810.2	381,676	136	87	2,070.4	211,715	102	90

Results of Test Work Conducted by the Board.

The results of the Board's field tests are briefly set out in the following appendices:

1. Tabulated statement showing data compiled from field tests and being Appendix "A" to this report.

2. Isograph pressure map of the field, being Appendix "B" hereto.

3. Chart showing 72-hour closed pressure and rate of naphtha recovery during the ten-day test and the gasoline content of tail gas, being Appendix "C".

Analysis of Waste Gas.—It was felt desirable by the Board, when the tests were inaugurated, that an analysis of the gas, after leaving the separators—commonly referred to as "tail gas"—should be made during the period of the carrying on of these tests for the purpose of determining its gasoline content. This was done, the result showing that the present method of the separation of the naphtha from the gas adopted in Turner Valley, leaves a large amount of naphtha unrecovered, this amount being included in the residue gas, the greater part of which is burnt, the balance being used in the Gas Company's system. Elimination of this waste by a more efficient method of separation would substantially increase the naphtha production in the field. The loss in the high pressured wells is much less than in the wells where there has been a heavy decline in pressure. In many of the latter wells, this loss amounts to several times the naphtha actually recovered. It is only fair to say that the Board's figures in this connection include the high volatiles which it may be impossible to utilize, but even making allowance for this fact, it is apparent that the present separation methods are decidedly wasteful.

The results of the analysis of tail gas are shown in the tabulated statement, Appendix "A", and the chart comprising Appendix "C".

Area in the Field.

In arriving at any conservation plan, it has been necessary to endeavour to determine the amount of acreage which can be fairly considered as producing or potential producing. This acreage is described in the plan submitted by the Board as acreage on structure.

The boundaries of the area, as determined by the Board, are shown in the accompanying map (Appendix "B"). The eastern boundary is determined by the eastern limit of the producing limestone. It has been found from the data obtained in drilling operations that the limestone is cut off towards the east by a thrust fault which extends in a northerly and southerly direction throughout the field. The boundary as drawn represents, to the closest approximation from the data, the eastern limit of the producing limestone. The wells situated east of this line have failed to encounter the limestone, but have encountered the plane of the fault which has been responsible for the removal of the limestone out of reach of possible production. The data used in this determination are on record in the Petroleum and Natural Gas Division of the

Lands and Mines Department, being set out in Appendix "E" hereto attached.

The western boundary is the boundary between the Belly River and Benton formations. The dips are on the whole fairly steep to the west, and the elevation of the surface increases sharply westwards to the Belly River shales. Because of these two facts, the depth at which the limestone would be reached increases rapidly towards the west, and the boundary may be taken in the light of our present knowledge as the probable western limit of economical drilling. There is attached to this report, as Appendix "F", the map of the Dominion Department of Mines, on which this boundary is based.

At the south end of the field, the dips in the somewhat limited exposures are sharply southwards. Here, too, the boundary is drawn to represent in the light of present knowledge a probable southward limit of economical drilling. At the north end, the boundary is drawn approximately one-half mile north of the most northerly productive well. Wells hitherto drilling north of this boundary line have not encountered productive strata.

It will be noted that the northern, western and southern boundaries are not defined by structural breaks in the formation. It is not improbable that further drilling will give information which will necessitate changes in these boundary lines. The Board feels that the area as defined should be taken in the first instance and that revision should only come when the data of production are revised as a result of the operation of the field over a period of a year. The acreage of the area delimited by the Board is 8,521.3 acres.

An application was made by Model Oils, Limited, to have its acreage withdrawn from the conservation area, on the basis of a submission that Model Well No. 1 was drawing its oil from an independent geological structure. The Board feels that the geological evidence is not sufficiently conclusive to warrant the withdrawal of this acreage from the conservation area. On the basis of the distinctive character of the well, however, both with regard to oil and gas oil ratio, Model Oils, Limited, is given special consideration in the proration plan as submitted by the Board.

Findings of the Board

The Board is required under the terms of the Act (Sections 15 and 16) to make certain findings, which in so far as it has been possible to do so, are now set out.

(*a*) *Reserves of Gas.*

The Board is convinced that reserves of gas in this area or in any part of it, cannot be estimated with mathematical accuracy on the basis of the data obtained during the test work conducted by the Board or by comparisons of well pressures secured by the Department of Land and Mines in 1931 and those obtained by the Board in 1932. The Board believes, however, that an estimate of 512 billion cubic feet of gas, available above 400 lbs. pressure, as at the end of November 1932, or a gas flow of 57½ billion cubic feet per 100 lbs. of pressure drop is a reasonable minimum estimate of the reserves of gas in the field.

This minimum estimate is based upon the estimated gas flows and measured pressure drops recorded in the tests made between July 4th and October 27th last, compiled separately for each of eleven regions in the field, and the average of 24 hour closed pressure of each region as compiled by the weighting of equal pressure areas from the Board's pressure isograph map showing assumed pressure contours as of November 24th, 1932.

The minimum reserves are estimated on the basis of gas available above 400 lbs. pressure per square inch for the reason that this pressure is assumed as being the lowest average pressure at which gas in Turner Valley could be collected, treated and sold without repressuring. There would still be left available in the field 230 billion cubic feet of gas, a portion of which could be used by repressuring.

The possibilities of variation of any estimates of gas reserves in the area, as made by competent authorities, are well illustrated in the estimates submitted to the Board at the public inquiry, and cited hereunder. These estimates tend to confirm the Board's estimate as a minimum.

Doctor Oliver B. Hopkins, a geologist representing the Imperial Oil Company, estimated the reserves at 70 billion cubic feet per 100 lbs. of pressure decline, or 600 billion cubic feet down to 400 lbs. pressure, with an additional 280 billion cubic feet down to atmospheric pressure.

Mr. B. F. Hake, representing a large number of independent operators in the field, submitted two estimates, the higher of which indicated reserves of 723 billion cubic feet down to 400 lbs. pressure, with an additional 323 billion cubic feet down to atmospheric pressure. This estimate was based on a gas flow of 80 billion cubic feet per 100 lbs. of pressure decline. Mr. Hake's lower estimate was 593 billion cubic feet down to 400 lbs. pressure, with an additional 390 billion cubic feet down to asmospheric pressure.

Mr. Stanley J. Davies, a geologist representing Mercury Oils, Limited, Miracle Oils, Limited, Mill City Petroleum and the East Crest Oil Company, Limited, estimated reserves at 476 billion cubic feet above 400 lbs. pressure, but qualified his statement with the opinion that this estimate was probably high. It was understood that this estimate was based upon the calculation of reserves by regions.

Mr. S. E. Slipper, geologist for the Canadian Western Natural Gas, Light, Heat and Power Company, Limited, discussed at considerable length the difficulties of estimating reserves with the data available. He had finally decided to base his estimate on an assumed original rock pressure of 2,050 lbs., a present (November, 1932) average rock pressure of 1,220 lbs., and a total gas flow to that date of 477 billion cubic feet. These data show a gas flow of 57.4 billion cubic feet per 100 lbs. of pressure decline and indicated gas reserves of 470 billion cubic feet above 400 lbs. pressure and 701 billion cubic feet down to atmospheric pressure. This estimate was further qualified by evidence that it would be reduced if consideration were given to deviation in certain gases from the general principles of Boyle's law of pressures and volume.

It is apparent that before a reasonably accurate measurement of these gas reserves can be made, the entire field must be put on a metered basis so far as gas production is concerned and closed in pressure tests carefully taken at least once, if not oftener, each year. A uniform method should be adopted for arriving at an average pressure for the field during the period of each pressure test.

In the estimation of gas reserves, the Board has not considered the question of danger to the field from water, there being no evidence of destructive water encroachment. "

(*b*) The probable lifetime of the field is, of course, dependent on the one hand on the size of the reserves, as to which the Board at present can only make a minimum estimate and, on the other hand, upon the rate at which the gas is drawn from the field. With the necessity of observing the gas flows and closed pressures of the wells for at least a year more, for the purpose of determining more definitely the question of reserves, it is impossible to estimate the length of time that the field will continue to produce. Furthermore, it appears to be the unanimous opinion of the operators, and it is also the opinion of the Board, that no definite plan of conservation should at the present time be effective for a greater period than a year, and that at the end of that year, it should be varied in accordance with the new data then available. While, therefore, it might be said that conservation at a constant rate such as the Board has recommended later on in this report would mean operation of the field for a period of approximately seven years down to a pressure of 400 lbs., it cannot be assumed that the rate of restriction will be uniform over that period, but the production will gradually suffer further curtailment from time to time.

(*c*) The estimate of the immediate and prospective requirements of gas for domestic and industrial use offers little difficulty. The annual consumption of the Canadian Western Natural Gas, Light, Heat and Power Company's system at the present time is approximately seven billion cubic feet. Another billion cubic feet or so is used by Imperial Refineries and a certain amount will be used in the field. An estimated requirement of ten billion cubic feet per year for the next few years would appear reasonable.

(*d*) Some three years ago a committee on conservation, representing the Dominion and the Province, went at considerable length into the question of the use of natural gas for industrial purposes. Various uses were suggested to that committee and investigated, such as the manufacture of carbon black, benzol and other products. More recently, Dr. Boomer, of the University of Alberta, has carried on in Calgary further large scale research work on the pyrolysis of the Turner Valley gas, for the recovery of light oils and tar. The results have been attractive, and estimates of the cost of a commercial unit have been prepared.

The difficulty about the establishment of any industries to utilize gas for purposes such as have been mentioned, is the lack of a market for the product, large enough to warrant the investment necessary for such an enterprise. It may be said that the amount of gas that any industry would require would not be large, in comparison with the present production, but even so the assurance of a

long lifetime for the field would be essential if it were found that such industry was commercially possible.

(*e*) Methods of effecting conservation are dealt with later on in this report and certain definite recommendations are made in regard thereto.

(*f*) The measured value of each area and of gas and oil rights in the field has been dealt with on a comparative basis only. The result of an attempt to arrive at an actual monetary valuation of the different properties in the field would be difficult as well as unsatisfactory, as such values must vary from time to time not only in accordance with prevailing prices of petroleum products, but also according to prevailing conditions. Any values arrived at by the Board merely appear expressed in the allowance of gas allotted to each well or property and appear in the plan dealt with later on in this report.

(*g*) The total daily gas production which may properly be allowed in the field is discussed in connection with the plan the Board is submitting herewith.

Conservation by Pooling.

As already indicated, one of the responsibilities of the Board was to endeavour to promote voluntary pooling. Pooling, however, can only be carried forward systematically if accurate data are available of the productive capacity of the individual wells and of the potential production of undrained acreage. Naturally, before any pooling negotiations were undertaken, the operators desired that the data resulting from the Board's tests should be available.

Apart from this, any unitized operation of the field, whether on a voluntary or compulsory basis, appeared to present two major difficulties. The first of these, encountered prior to the advent of the Board, was that no agreement could be reached between the operators as to the method of representation of the various interests on the managing board. The second difficulty related to the measurement of value of the various properties. In the study of the data which have been accumulated from the field tests, the Board arrived at the conclusion that it would be unwise to endeavour to establish values on individual properties without continuous operation of the field under recording meters, over a period of at least one year. The main problem is that of potential reserves in undrilled acreage on which, at best, under the data now available, only a minimum estimate can be placed.

A study of the data secured by the Board during tests, presents some interesting sidelights on the importance of pooling of interests in the field and the conservation of gas energy that might thereby be effected through the closing down of low pressure, high gas oil ratio wells and the general benefits that would accrue to the field as a whole.

The results of the ten-day tests on 84 wells, showing gas and naphtha production, operating at 66 2/3% of closed in rock pressures, are given with other data in Appendix "A" to this report.

An analysis of these records, including as production all naphtha obtained by blowing, shows that 23 wells, each having gas oil ratios under 125 M.c.f., were capable of producing at that back pressure, 2,295 barrels of naphtha with 149,561 M.c.f. of gas, or at a gas oil

ratio of 65 M.c.f., while 61 wells, each having gas oil ratios higher than 125 M.c.f., operating under the same percentage of back pressures, produced only 856.8 barrels of oil with 248,041 M.c.f. of gas, or at a gas oil ratio of 289 M.c.f.

The figures are tabulated hereunder, showing totals by groups of wells:

	Ten day test on 61 high gas oil ratio wells		Ten day test on 23 low gas oil ratio wells		Totals	
	Gas Prod'n M.c.f.	Naphtha Barrels	Gas Prod'n M.c.f.	Naphtha Barrels		
Independent	87,604	333.6	69,085	969.8	156,689	1,303.4
Imperial Subsidiary	103,080	384.4	52,045	590.5	155,125	974.9
Imperial Contract	57,357	138.8	28,431	734.7	85,788	873.5
Imperial	160,437	523.2	80,476	1,325.2	240,913	1,848.4
TOTAL	248,041	856.8	149,561	2,295.0	397,602	3,151.8
	Gas Oil Ratio 289		Gas Oil Ratio 65		Gas Oil Ratio 126	

The daily average production of the field in the month of December, as reported by the Department of Lands and Mines, was 2,070.4 barrels of naphtha, produced with 211,715 m.c.f., or at a gas oil ratio of 102 M.c.f. The 23 wells, comprising the high pressure low gas oil ratio group above referred to, contributed to December production to the extent of 1,563 barrels, obtained with 75,720 M.c.f. of gas, or at a gas oil ratio of 48 M.c.f. As the wells are not metered and there may be a disposition to understate gas production, these gas production figures may be open to question. The correction of any error in this direction would merely strengthen the basis for the following conclusion.

It is apparent, therefore, that as shown by the ten day tests, 23 wells, when operated at 66 2/3% closed in rock pressure, were capable of producing more naphtha from 150,000 m.c.f. than was produced from the entire field in December from over 211,000 M.c.f. It would thus seem to be a reasonable deduction that really effective measures of conservation in the field should be brought about by the complete closing in of wells when these have reached a high gas oil ratio stage.

While some form of agreement, pooling or unitized operation of the field involving the closing down of wells having high gas oil ratios would undoubtedly result in the most efficient form of operation and conservation of gas energy, the Board would hesitate at the present time to recommend that it be brought about by compulsion.

Any plan of conservation that is attempted to be based upon relative operating efficiencies of the various wells in the field, particularly in so far as naphtha recovery is concerned, cannot but appear to bear harshly upon those wells with depleted pressures and high gas oil ratios. On the other hand, to adopt any scheme which does not stress efficient operation means the penalizing of efficient wells and must diminish naphtha production, for it must encourage the heavy use of gas energy to recover small amounts of naphtha.

The tendency on the part of the operators of these low pressure wells is to continue operations regardless of the effect their method of operation may have upon the field as a whole. Without any form of limitation of production, they would probably continue to

operate their wells until the pressure had decreased to such an extent that the lifting power for the naphtha was gone. There are one or two cases at present where the return from operation is barely sufficient to pay the men operating the separators.

The operators of some of the more efficient wells have pointed out that these low pressure wells have, to a large extent, obtained their possible naphtha production and that the stage of wasteful operation which has now been reached must result in penalizing those operators who, warned by the results of the inefficient operation of other wells, have endeavoured to operate efficiently from the outset. It is hoped that some measure of pooling may be accomplished under the Board's proration plan, as that appears to offer some solution of the difficulties that must be encountered by those companies operating low pressured wells.

Again, in the operation of these inefficient wells, the adoption, if feasible, of a less wasteful method of blowing the wells may afford some solution. In many cases, it is usual at present to obtain naphtha production by blowing, but between blowing the gas flow is continued with the result of an excessive use of gas for the amount of naphtha recovered.

It is also probable that through the tubing of some of these wells, considerably greater naphtha may be recovered with considerably less gas consumption. No proper trial of this practice has been attempted in Turner Valley, although it has long been in use in other fields.

Conservation by Proration.

In the place of any voluntary pooling which, at the present time does not seem feasible, if the whole field is to be covered by such pooling, and in the place of any compulsory unitized operation of the field, the Board believes that conservation at the present time can be more readily effected through putting into effect a plan of proration of gas to be allowed to be produced in the whole field.

At the public hearing, Mr. B. F. Hake, representing a number of the smaller companies, submitted a plan of proration, based upon a daily allowance for the field of 300 million cubic feet of gas. Under this plan each well was to be required to produce under a back pressure, not less than a certain percentage of its recent twenty-four hour closed in pressure, this percentage to be a uniform one throughout the field. Actual back pressures to be carried by each well were to be revised annually in the light of future observation of closed in pressures and when practicable, bottom hole pressures should be substituted for closed in pressures. Each operator was to be permitted to blow his well or wells under certain restrictions and, where the system of proration suggested appeared to unduly penalize an operator, special consideration should be given to his well or wells. All restriction as to export of natural gas from the Province was to be removed and either the common purchaser principle with respect to natural gas was to be brought into effect or compensation paid to the operators by the Gas Company. Finally, a revision of the taxes on mineral rights and oil production was suggested.

In regard to this plan, it may be said that it is based upon Mr. Hake's estimate of gas reserves, which estimate very considerably

exceeded those of any other witnesses at the inquiry. Proration on the basis suggested means the withdrawal of 110 billion cubic feet of gas a year at the outset. In the Board's opinion the data available do not warrant the adoption at the present time of conservation on as generous a scale as suggested. It may be said also that such proration allowance would probably result in the production of naphtha beyond the market needs, while it is more than doubtful whether some at least of the companies represented by Mr. Hake, would be placed in any better, if as good, a position, as they are now in under the proration now in effect.

There are two essential elements which should be considered in any proration plan. The first is that it should permit as great a measure of flexibility in operation as possible, so that the operators may have within the limits of the conservation programme the fullest freedom to operate as may seem to their best advantage. The second is that the plan should put as great a premium as possible upon efficient operation within the limits of the conservation proposed.

The Board has, with the assistance of its advisory engineer, worked out a plan of gas proration in the field, as set out in detail in Appendix "G" to this Report. The gas allowance to each operator or owner of gas and oil rights within the area is based in part upon acreage on structure, weighted by average pressures and in part on actual efficient naphtha production as determined by test.

Prior to the public inquiry, a draft of substantially the same plan was sent out by the Board to the various parties interested, and the fullest discussion of the plan was invited at that inquiry. It may be said that there appeared to be no objection to the principle of proration, and the principles of the plan itself were not subject to any great criticism, although it is only fair to say that Mr. Hake, in presenting his own plan, already referred to, may be considered as disagreeing.

In the operation of this plan, a gas quota assigned to a particular holding may be used on any well or wells in that holding and under any method of production which may be to the greatest benefit of the operator. He may operate at any pressure which he may deem advisable. He may conserve the gas allowance at certain periods of the year in order to have it available in greater amount at such times as the demand for naphtha is greatest, always provided that no more gas is allowed to escape during the year than would be permitted under the quota. If he cannot use the quota which has been assigned to his holding, under the plan, whether because there is no well on the holding or because production cannot efficiently be obtained from the well or wells which exist, he may make arrangements to transfer the quota by sale or otherwise in order that it may be used to increase naphtha production elsewhere within the Turner Valley area. The only limitation to the transference of quotas would be that differences of pressures on adjoining wells on neighbouring properties should not be permitted to the extent that undue depletion of the reserves on any property would occur, because of the much lower back pressure at which the well or wells on adjoining properties were operating. It would be the responsi-

bility of the supervising engineer to see that this safeguard be maintained.

The plan promotes efficient operation of the field because it is to the advantage of the operator to obtain the greatest amount of naphtha possible from the gas which has been allowed him. The value of his production is mainly in naphtha and only secondary in gas, even if he obtains a market for the gas. The gas quota will, therefore, be used in such a way as to obtain the greatest amount of naphtha under the conditions which prevail in any well or group of wells in a holding. If this quota is transferred to another holding, the operator who has the lowest gas oil ratio can offer the best terms for the quota to be transferred because it is of most value. Transfers might be expected, therefore, to take place in the areas of efficient production in the field.

There is also a premium on efficiency of operation in the structure of the plan itself. As will be noticed by an examination of the details of the plan and the accompanying explanation, the proration quota is made up in part from the naphtha production of the wells and in part from the acreage potential, that is, the product of acreage and its average available pressure. The proportional weight given to naphtha production, as compared to acreage potential, is approximately as 30 to 70. Under this plan the more efficient the production, the lower is the gas oil ratio, in other words, the larger is the proportional quota. The operator who is producing under the lowest gas oil ratio possible for his wells obtains a higher gas quota in subsequent revisions than the operator who obtains the same amount of naphtha at a greater expenditure of gas because of the fact that the acreage potential is maintained at a higher level under efficient production methods when gas is not unduly wasted. The structure of the plan itself, therefore, and the effect of the revisions which will take place from time to time, as further data are established, together tend to promote the highest efficiency of operation in the field, short of establishing hard and fast rules for the individual operator.

It might also be pointed out that in future revisions of the plan on the basis of revised data respecting acreage, average pressures and naphtha production, automatic curtailment of the total gas allotment to the field would be secured by maintaining in such revisions substantially the same unit quotas as are now set out in the plan submitted, namely, 19.11 thousand cubic feet per barrel of naphtha produced, 26,291 cubic feet per average pressure acre for drilled acreage, and 13,145 cubic feet per average pressure acre for undrilled acreage.

It will be seen by a reference to the plan itself that while a total daily gas allowance of 200 million cubic feet is contemplated, an amount of 10 million cubic feet has been set aside out of that amount to meet any proration allowances for naphtha production that may require to be given in the case of new wells coming in, and also to cover certain allowances that have been or may have to be given to two very low gas oil ratio wells as well as to cover any readjustments that may have to be made in the case of producing wells.

Compensation.

One of the purposes of the public inquiry provided for in the Act was the ascertaining by the Board of the net detriment suffered and benefits derived by any person or group of persons through conservation of gas. No evidence along these lines was offered at the hearing, it being apparently the unanimous opinion of the operators that the question of compensation could not be intelligently discussed or dealt with until any conservation plan that might be adopted should be in effect for at least a year. It is quite apparent, therefore, that the question of compensation should be left entirely open and be determined later on by some body selected for that purpose.

Recommendations

In conclusion, the Board begs to recommend as follows:

1. *Removal of restriction of drilling.* That in view of the fact that a definite restriction of the total gas production in the field is recommended under the plan submitted by the Board and that the drilling of wells will not materially affect the total allotment of gas for the field, any restrictions that may be now in effect as to drilling into the limestone in Turner Valley be rescinded.

2. *Installation of meters and pressure gauges.* That Sections 31 and 33 of the regulations respecting drilling and production operations of oil and natural gas wells (Order in Council 769/31), dealing respectively with the taking of closed in pressures and of the measuring of gas production by meter, be strictly enforced in the field, in order that more accurate information may be available in the future on which to base estimates of gas reserves, and on the basis of which revision may be made from time to time of the gas proration plan recommended in the next section.

3. *Gas Proration Plan.*

(*a*) That as soon as it may be found convenient, the present restricted production of gas in the area under the Board's Order No. 20, be replaced by a gas proration plan in which a gas production allotment is made to each and every owner of oil and gas lands lying within the assumed boundaries of the productive gas horizon in the Turner Valley area, as shown on the Board's pressure isograph map and Appendix "B", based upon acreage, estimated average pressures and efficient naphtha production in the manner shown in detail in the plan, being Appendix "G" attached hereto, and that the proration of gas production be administered by such authority as the Legislature may determine.

(*b*) That until a revision of the plan is made after the first year of operation, any additional allotment arising out of the bringing into production of new wells or for any other reason, shall be met out of any available allotment not being used and, if necessary, by an increase in the total daily allotment. The allotments as set out in the plan should be effective for one year and be revised thereafter at such periods as may be found expedient, on the basis of revised data respecting acreage, average pressures and naphtha production, and having regard to the possible desirability of a further reduction in the total daily allotment.

(*c*) That in the enforcement of this plan, sufficient flexibility be allowed to permit of the most efficient use of gas quotas. To this end, operators should not be arbitrarily restricted to the fixed daily quota, but should be permitted to accumulate such quotas for any type of more efficient operation. Similarly, transfers of quotas from one owner to another by sale or lease of gas and oil rights should be facilitated in order that the owners of lands who have not drilled may find a market for their holdings. All such flexibility, however, shall be subject to the proviso set out in the next subsection.

(*d*) That in the operation of this plan, accumulations of gas quotas shall not be used on any one well or any group of wells so as to excessively drain any particular area.

(*e*) That in preparing future revisions of this plan, the recovery of natural gas gasoline from the gas from any well be included with naphtha production for the purpose of determining gas allotments.

4. *Compensation.* That the question of the determination of compensation to individual oil or gas operators in the area be deferred for consideration by such body as the Legislature may appoint after the proration plan herein recommended, has been in operation for the time indicated.

5. *Further Study of Records.*

(*a*) That all the records and information collected by the Board be referred to the Petroleum and Natural Gas Division of the Department of Lands and Mines or such other authority as may be determined, for further detailed analytical study when the additional data respecting changing pressures and operating conditions in the field during the coming year are obtainable, so that the fullest possible information may be available for the future determination of gas reserves and of gas conservation policy.

(*b*) It is further recommended that the results of these studies be brought to the attention of the operators with a view to assisting them in developing a scheme of voluntary pooling or unitized operation.

In submitting this report, the Board desires to express its high appreciation of the loyalty and efficiency of the various members of its office and field staff. Much of the work devolving on them has been both arduous and difficult, but their work has fully justified the Board in the selection of the personnel of its staff.

Dated at Edmonton, this 22nd day of February, A.D. 1933.

Respectfully submitted,

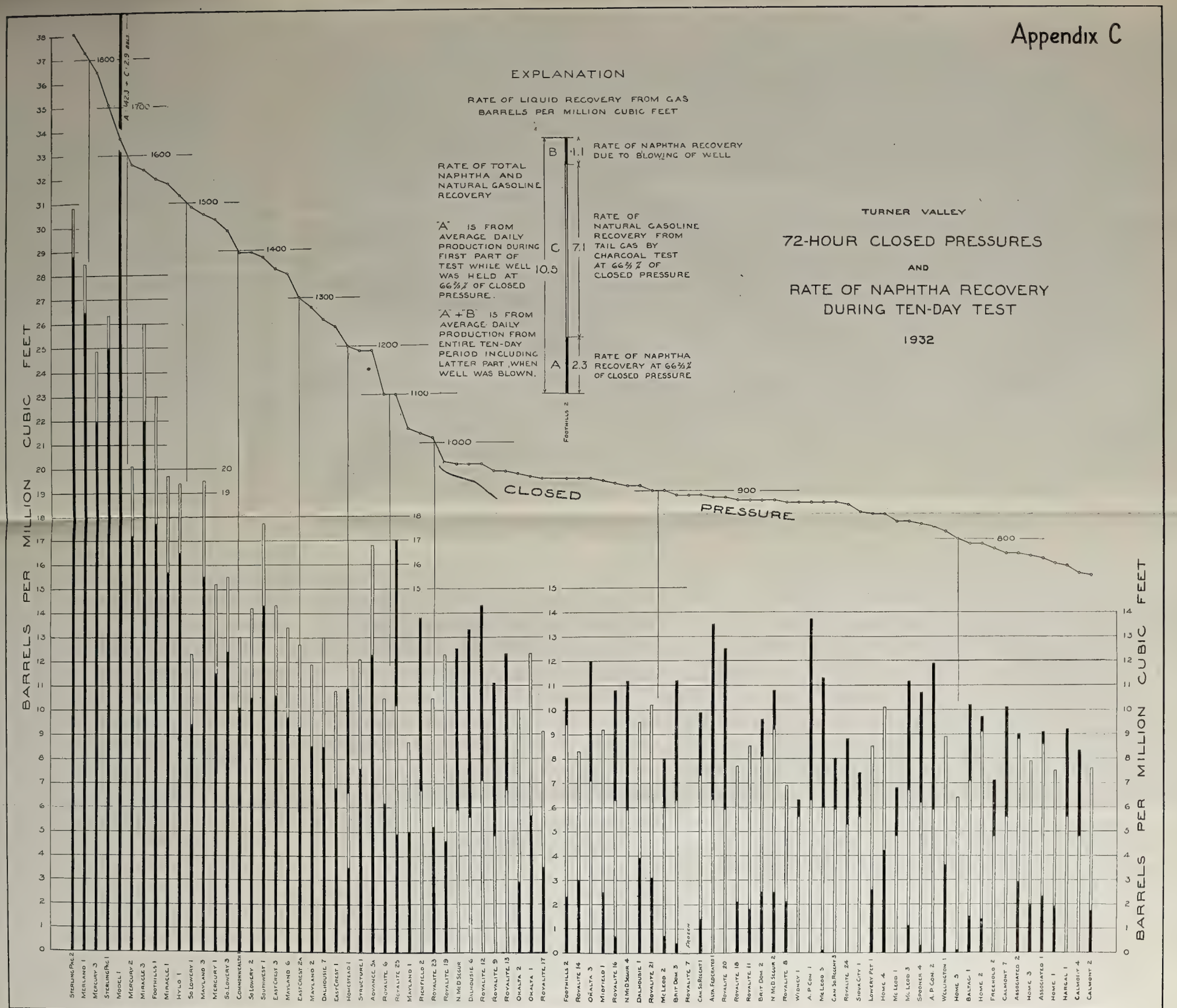
A. A. CARPENTER,
R. C. WALLACE,
JOHN McLEISH.

Attachments A, E, F and G of Exhibit A being bulky, are not included in the report, but copies may be obtained on application to the Division.

Appendix B

PRESSURE ISOGRAPH MAP

Appendix C


EXPLANATION
RATE OF LIQUID RECOVERY FROM GAS
BARRELS PER MILLION CUBIC FEET
RATE OF TOTAL NAPHTHA AND NATURAL GASOLINE RECOVERY
"A" IS FROM AVERAGE DAILY PRODUCTION DURING FIRST PART OF TEST WHILE WELL WAS HELD AT 66⅔% OF CLOSED PRESSURE.
"A"+"B" IS FROM AVERAGE DAILY PRODUCTION FROM ENTIRE TEN-DAY PERIOD INCLUDING LATTER PART, WHEN WELL WAS BLOWN.
B 1.1 RATE OF NAPHTHA RECOVERY DUE TO BLOWING OF WELL
C 7.1 RATE OF NATURAL GASOLINE RECOVERY FROM TAIL GAS BY CHARCOAL TEST AT 66⅔% OF CLOSED PRESSURE
10.5
A 2.3 RATE OF NAPHTHA RECOVERY AT 66⅔% OF CLOSED PRESSURE
FOOTHILLS 2
TURNER VALLEY
72-HOUR CLOSED PRESSURES
AND
RATE OF NAPHTHA RECOVERY
DURING TEN-DAY TEST
1932
CLOSED PRESSURE
BARRELS PER MILLION CUBIC FEET
BARRELS PER MILLION CUBIC FEET
1800
1700
1600
1500
1400
1300
1200
1100
1000
900
800
20
19
A 42.3 + C 2.9 dups
Sterling Pac 2
Merland 1
Mercury 3
Sterling Pac 1
Model 1
Mercury 2
Miracle 3
Foothills 1
Miracle 1
Hylo 1
So Lowery 1
Mayland 3
Mercury 1
So Lowery 3
Commonwealth
So Lowery 2
Southwest 1
East Crest 3
Mayland 6
East Crest 2A
Mayland 2
Dalhousie 7
East Crest 1
Homestead 1
Structure 1
Advance 3A
Royalite 6
Royalite 25
Mayland 1
Richfield 2
Royalite 23
Royalite 19
N Med Sour
Dalhousie 6
Royalite 12
Royalite 9
Royalite 13
Okalta 2
Okalta 1
Royalite 17
Foothills 2
Royalite 14
Okalta 3
Midfield 1
Royalite 16
N Med Sour 4
Dalhousie 1
Royalite 21
McLeod 2
Brit Dom 3
Royalite 7
Can Sa Regent 1
Alta Federated 1
Royalite 20
Royalite 18
Royalite 11
Brit Dom 2
N Med Sour 2
Royalite 8
Widney 1
A P Con 1
McLeod 5
Can Sa Regent 3
Royalite 24
Sioux City 1
Lowery Pet 1
Home 4
McLeod 1
McLeod 3
Spooner 4
A P Con 2
Wellington 1
Home 5
Baltac 1
Home 2
Freehold 2
Calmont 7
Associated 2
Home 3
Associated 1
Home 1
Hargal 1
Calmosity 4
Calmont 2

Appendix D

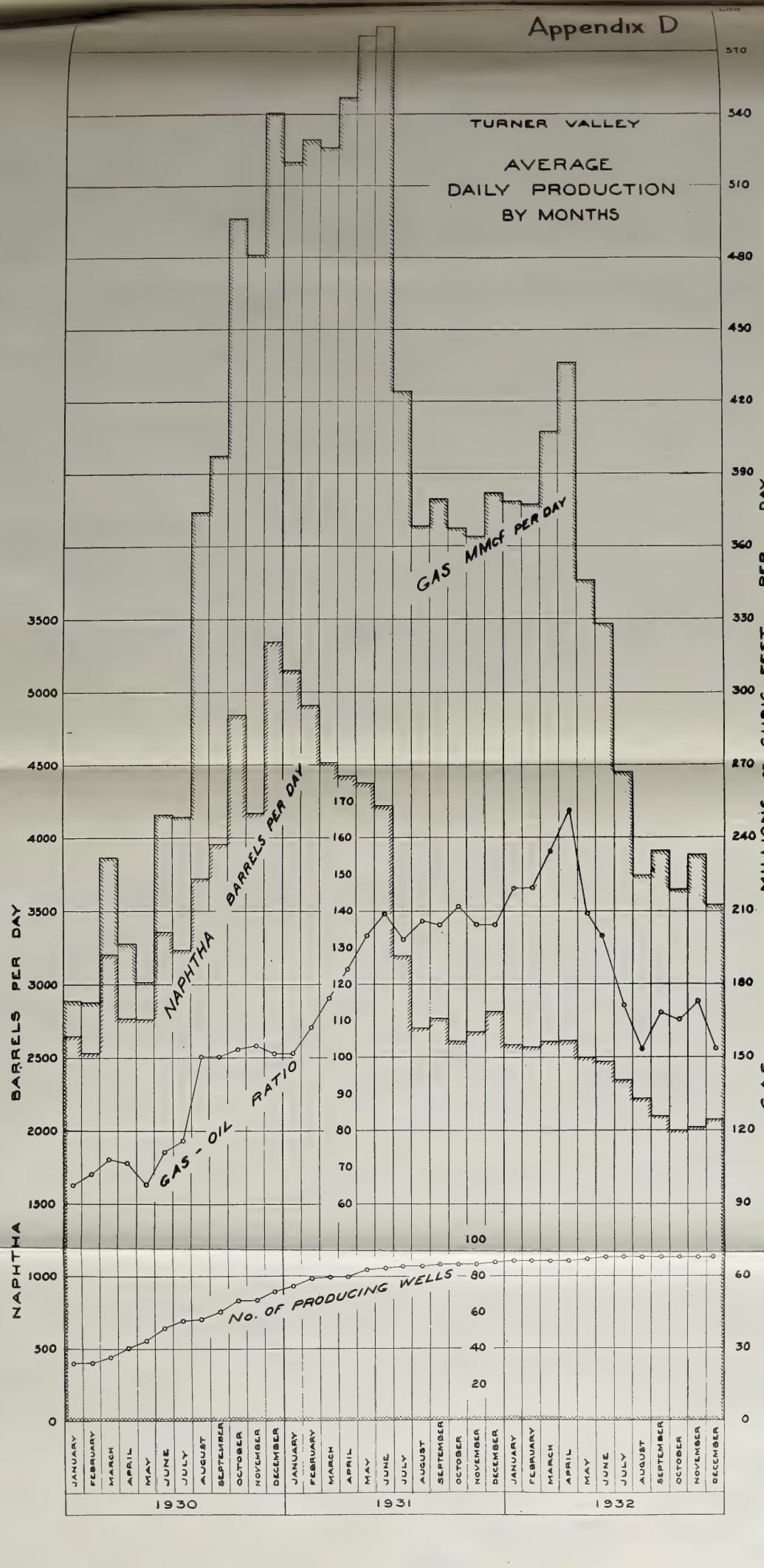

TURNER VALLEY
AVERAGE
DAILY PRODUCTION
BY MONTHS
GAS MMCf PER DAY
NAPHTHA BARRELS PER DAY
GAS - OIL RATIO
No. OF PRODUCING WELLS
BARRELS PER DAY
NAPHTHA
MILLIONS of CUBIC FEET PER DAY
GAS
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER
1930
1931
1932

EXHIBIT B

O.C. 256/33.

Approved and Ordered,

(Signed) W. L. WALSH,
Lieutenant Governor.

Edmonton, Thursday, April 13th, 1933.

The Executive Council has had under consideration the report of the Honourable the Minister of Lands and Mines, dated April 6th, 1933, stating that by Order in Council numbered 769/31, dated July 10th, made pursuant to the provisions of *The Oil and Gas Wells Act*, 1931, regulations were made respecting drilling and production operations of Oil and Natural Gas Wells in the Province of Alberta, and that it is proper, convenient and in the public interest that the aforesaid regulations be amended as to Section 36 thereof in the manner hereinafter mentioned;

Therefore, upon the recommendation of the Honourable the Minister of Lands and Mines, the Executive Council advises that the aforesaid regulations be and are hereby amended as to Section 36 thereof, by striking out the words "When gas from any well is being used, the flow production thereof shall be restricted to twenty-five" where the same occur therein, and by substituting therefor the words, "When gas from any well is being used, the flow of production thereof shall be restricted to forty."

The said amendment to be effective on, from and after the date of this Order.

(Signed) J. E. BROWNLEE,
Chairman.

O.C. 257/33.

Approved and Ordered,

(Signed) W. L. WALSH,
Lieutenant Governor.

Edmonton, Thursday, April 13th, 1933.

The Executive Council has had under consideration the report of the Honourable the Minister of Lands and Mines, dated April 6th, 1933, stating that:

WHEREAS by Order in Council numbered 1142/31, dated November 26th, 1931, the regulations heretofore made pursuant to *The Oil and Gas Wells Act*, 1931, by Order in Council numbered 769/31 and dated July 10th, 1931, were amended by inserting therein a new regulation, numbered 45, restricting or prohibiting drilling into the dolomite limestone; and

WHEREAS it is deemed proper, convenient and in the public interest that the aforesaid regulation number 45 be now deleted and rescinded;

THEREFORE, upon the recommendation of the Honourable the Minister of Lands and Mines, the Executive Council advises that the aforesaid regulation number 45 be and is hereby deleted and rescinded on, from and after the date hereof.

(Signed) J. E. BROWNLEE,
Chairman.

O.C. 258/33.

Approved and Ordered,

(Signed) W. L. WALSH,
Lieutenant Governor.

Edmonton, Thursday, April 13th, 1933.

The Executive Council has had under consideration the report of the Honourable the Minister of Lands and Mines, dated April 6th, 1933, stating that:

WHEREAS by Order in Council numbered 644/32, dated July 19th, 1932, the regulations heretofore made pursuant to *The Oil and Gas Wells Act*, 1931, by Order in Council Numbered 769/31, and dated July 10th, 1931, were amended by inserting therein a new regulation, numbered 36A, for the purpose of conserving gas and oil; and

WHEREAS it is deemed proper, convenient and in the public interest that the aforesaid Regulation number 36A be now deleted and rescinded;

THEREFORE, upon the recommendation of the Honourable the Minister of Lands and Mines, the Executive Council advises that the aforesaid Regulation number 36A be and is hereby deleted and rescinded, on, from and after the date hereof.

(Signed) J. E. BROWNLEE,
Chairman.

Exhibit C

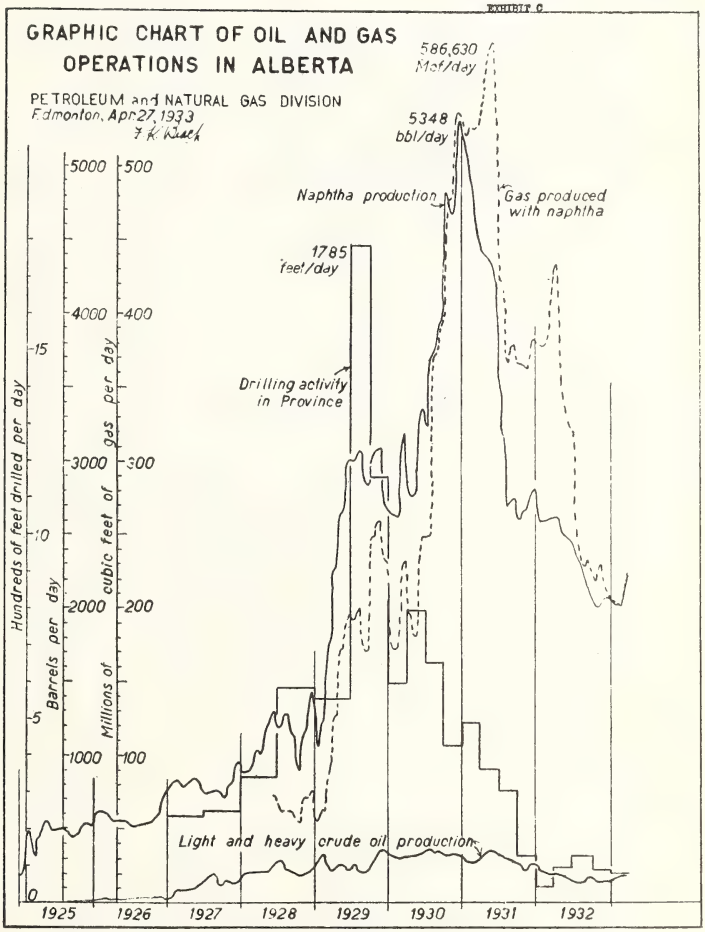


EXHIBIT C
GRAPHIC CHART OF OIL AND GAS OPERATIONS IN ALBERTA
PETROLEUM and NATURAL GAS DIVISION
Edmonton, Apr 27, 1933
586,630 Mcf/day
5348 bbl/day
Naphtha production
Gas produced with naphtha
1785 feet/day
Drilling activity in Province
Light and heavy crude oil production
Hundreds of feet drilled per day
Barrels per day
Millions of cubic feet of gas per day
5000
4000
3000
2000
1000
500
400
300
200
100
15
10
5
0
1925
1926
1927
1928
1929
1930
1931
1932

Exhibit D.

WELLS DRILLED AND COMPLETED DURING YEAR ENDED MARCH 31, 1933

TURNER VALLEY FIELD

NAME	Location	Drilling Started	Drilling Finished	Depth	REMARKS
Anaconda 2	15 of 28–18– 2–W. 5	28–12–32	.....	340	Drilled to 217 and skidded rig for a new start.
Freehold 4 (Marjon)	9 of 28–18– 2–W. 5	7– 4–31	5– 3–33	5,854	Large producer of gas and naphtha.
Hoffar Lundy 1	13 of 22–18– 2–W. 5	15– 3–33	.....	160	Drilling.
Hylo 1	12 of 4–19– 2–W. 5	11– 7–29	22– 6–32	5,665	Completed as good producer of gas and naphtha.
McLeod 1	16 of 1–20– 3–W. 5	10–10–23	26– 5–32	3,965	An additional depth of 91 feet drilled with negative results.
McLeod 4	16 of 1–20– 3–W. 5	13– 3–28	18–11–32	7,751	An additional 2,274 feet drilled without increase in production.
Model 2 (formerly Anaconda 1)	16 of 22–20– 3–W. 5	28– 8–29	.....	4,900	After reaching 3,954, redrilling started from 2,400; drilling continues.
New McDougall Segur 5	11 of 12–20– 3–W. 5	30– 6–32	27– 9–32	2,888	Completed as producer of light crude.
Regent 3 (Canada Southern)	16 of 1–20– 3–W. 5	3– 8–29	17– 5–32	4,450	Completed in limestone. Produces gas with very little naphtha.
Spray 1 (Associated Royalties)	9 of 5–19– 2–W. 5	11– 6–29	.....	3,320	Drilling.
Union Drilling Co. 1	8 of 21–18– 2–W. 5	31–12–32	.....	60	
United 4.	2 of 24–20– 3–W. 5	4– 1–28	1– 3–33	5,520	Drilled to 6,360, plugged back and partly redrilled. Now produces light crude.
Vanberta (Mayland–Rand)	5 of 34–18– 2–W. 5	6– 2–30	7– 6–32	264	Suspended.

RED COULEE FIELD

Devonshire 1	4 of 10– 1–16 W. 4	18– 4–30	.....	2,130	Drilling. Was suspended for some months.
Kotop 1A	1 of 2– 1–17–W. 4	29– 6–30	.....	2,080	Drilled to 2,080 and suspended for some months uncased. Renewed drilling under new management.
Vanalta 5	4 of 4– 1–16–W. 4	8– 9–32	2–11–32	2,517	Light crude producer.

WAINWRIGHT FIELD

Beaumont 2	10 of 30–45– 7–W. 4	4–11–29	23–11–32	2,210	Testing.
Montreal–Alberta 1	2 of 15–45– 7–W. 4	5– 6–31	18– 1–33	2,885	Suspended.

FOOTHILLS AREA

Cottonbelt 1A	5 of 21–21– 4–W. 5	4–12–30	16– 8–32	3,140	Abandoned.
Elbow 1	11 of 35–22– 5–W. 5	9– 4–29	17–11–32	3,610	Suspended.
Moose 1 (Herron Cartage)	16 of 29–22– 6–W. 5	11– 8–29	.....	2,834	Efforts to sidetrack lost tools and drill deeper.

OTHER AREAS

Athadome 1	12 of 21–72–24–W. 4	19– 5–32	23– 9–32	1,900	Abandoned. Good showings of gas.
Athadome 2	3 of 15–66–23–W. 4	20–10–32	.....	1,505	Drilling.
Cartier 1	6 of 36–31– 7–W. 5	25– 4–31	8– 2–33	1,450	Suspended.
Crudome 1	9 of 8–72–24–W. 4	26– 8–31	4– 6–32	810	Suspended.
Commonwealth, Milk River 1	8 of 9– 3–15–W. 4	7–11–28	9– 3–33	5,310	Abandoned.
Frontier, Two Hills 22	2 of 1–55–13–W. 4	14–11–32	11– 1–33	2,007	Abandoned.
Grey Bros. 3	1 of 32–25– 2–W. 5	26–11–32	.....	200	Drilling.
Hudson's Bay Keho 1	2 of 17–11–22–W. 4	21– 6–30	23– 2–33	3,792	Light crude producer. Originally drilled to 4,942 and plugged back.
Mayland Southern 1	13 of 4– 1– 9–W. 4	31– 3–31	2– 6–32	3,010	Potential gas producer.
Nordon Twin River 2	12 of 2– 2–20–W. 4	28–11–32	.....	2,353	Drilling.
Northwestern Utilities–Kinsella 1	1 of 17–47–11–W. 4	16– 5–32	11– 7–32	2,177	Potential gas producer.
Northwestern Utilities–Kinsella 2	4 of 25–47–11–W. 4	18– 7–32	20– 9–32	2,184	Potential gas producer.
Northwestern Utilities–Viking 24	10 of 32–48–12–W. 4	18– 4–32	9– 6–32	2,208	Gas producer.
Oil City 1	16 of 30– 1–30–W. 4	5–10–32	31–12–32	124	Suspended for winter.
Ranchmen's 1	16 of 13–20–29–W. 4	1– 1–27	6– 2–33	5,780	Temporarily suspended.

Forestry

REPORT OF THE DIRECTOR OF FORESTRY, T. F. BLEFGEN

This report covers the period of the fiscal year ended March 31st, 1933. During this year a number of important changes took place in administrative work and alterations in organizations were brought into being, all of which had far-reaching effects.

Economic conditions and the desire to place certain administrative work where it rightly belonged dictated the changes made in staff and the transfer of certain responsibilities to the Forest Service.

The fire season was probably one of the best ever experienced since forest protection has been undertaken. In number of fires, extent of loss from fires and cost of fire suppression the season was satisfactory. Following as it did the disastrous fire season of 1931, an immediate means of comparison was provided between what might be termed bad and good fire seasons, demonstrating the extent to which uncontrollable factors influence forest destruction by fire.

Timber operations were not extensive in size although very many small operations demanded attention keeping all timber inspectors exceedingly busy. The fact that an easier situation prevailed with respect to forest protection enabled inspection work to be kept well in hand.

Supervision of unemployment relief camps continued on a medium scale within two of the provincial forests situate along the east slope of the Rocky Mountains. This work has been practically continuous since the fall of 1930, the number of camps, of course, varying from time to time.

Administration and protection of those areas of provincial lands set aside as forest reserves continued as in the past. The work was kept in hand, and due to certain organization changes additional work in the way of timber inspection on lands outside the forest boundary was dealt with.

Scope of Work

Area.

The total area over which the forest Service is responsible for forest protection and field administration of forest resources is approximately 162,234.69 square miles. This is made up as follows: Provincial forest reserves, Cypress Hills forest reserve and Rocky Mountains forest reserve, 14,409.69 square miles, and the Northern Alberta forest district, which embraces practically all other forested territory within the Province not included in the forest reserves mentioned, 147,825.00 square miles. In addition to these districts there is a large area over which timber inspection work is carried on.

Forest Reserves.

Within the forest reserves the responsibility of the Forest Service is somewhat broader than in the Northern Alberta forest

district. The forest reserves are areas set aside for forest purposes under authority of The Alberta Forest Reserves Act. While such areas of land are withdrawn from disposition under the terms of The Provincial Lands Act or any other act, it should be understood that merchantable timber found on lands within such areas is not reserved, but may be disposed of under authority of The Alberta Forest Reserves Act and the regulations made thereunder. Under such circumstances the Forest Service is responsible for the protection and the field and office administration of the resources found on these lands. Such resources will include timber, grazing and hay. The administration is also concerned with the use of land for a variety of purposes as authorized by the regulations. It follows, therefore, that office and field organization dealing with such areas will of necessity be built along lines to deal with the work, and that improvements required for administration and protection purposes will be of a fairly permanent nature. Likewise, the interior organization of these areas will have in view a long term protection scheme.

The importance of protecting and regulating the use of forest resources within the watershed forests of the east slope is very great. The beneficial results of adequate protection and regulated use will be apparent in various ways, the most important of which are the production of merchantable timber, natural regulation of stream flow, reducing erosion, modifying of local weather conditions, game and fish conservation, and an attractive area for various forms of outdoor recreation.

Northern Alberta Forest District.

The Northern Alberta forest district is made up of forested area extending eastward from the Rocky Mountains forest reserve in the western central part of the Province, and includes practically all of the north half of the Province from which should be eliminated the agricultural districts west of Lesser Slave Lake, the Grande Prairie and Peace River districts and the Wood Buffalo Park.

Within the Northern Alberta forest district is to be found by far the greatest percentage of timber operations, and it is inside this area that the Forest Service is primarily concerned with forest protection, all field work and a very considerable amount of office work required in the administration of timber operations. Up to April 1st, 1932, the Forest Service was concerned only with forest protection throughout this district.

Authority is provided for protection purposes by The Prairie Fires Act and the regulations for the prevention of prairie and forest fires. The timber operations are carried on under authority of The Provincial Lands Act and the timber regulations. The administration of The Prairie Fires Act throughout the Province is a direct responsibility of the Forest Service. Within municipal districts the enforcement of this Act and the regulations made thereunder is a municipal responsibility.

The construction and operation of railways has always resulted in what might be termed a fire hazard to forest cover adjacent to the railway line. The Alberta Forest Service is continuing the work of the Federal body in so far as right of way inspection, special patrol by railway employees and action on railway fires are concerned. Authority for this work is secured through the

appointment of officers of this Service as fire inspectors under the Board of Railway Commissioners of Canada. Naturally the work is confined to forested territory, and includes all railway mileages within forest reserves and a large percentage of all railway mileage in the Northern Alberta forest district.

Organization

Forest Reserves.

With a view to providing for greater economy of operation, certain changes in forest reserve personnel organization were arranged. The changes made effective concerned a number of permanent employees who became seasonal employees, the amalgamation of certain administrative areas with a reduction in supervisory officials and the withdrawal of the area known as the Lesser Slave forest reserve from the operation of The Alberta Forest Reserves Act, the area automatically ceasing to be a forest reserve and coming under The Lands Act. In line with the last mentioned change, this area became part of the Northern Alberta forest district and personnel organization as to area covered, period of employment and remuneration placed on a footing common to the Northern Alberta forest district.

Excepting for the area previously known as the Lesser Slave forest reserve, the field staff employed during the fire season remained approximately the same as heretofore. The following comparative statement of personnel employed before and after the changes referred to will show clearly the action taken:

PERSONNEL ESTABLISHMENT PRIOR TO MARCH 31st, 1932

Cypress Hills Forest Reserve:
1 permanent ranger.
1 assistant ranger, seasonal.

Crowsnest Forest Reserve:
1 superintendent.
1 forest clerk.
7 permanent rangers.
3 seasonal assistant rangers.
3 lookout men, part–time.
4 patrolmen, part–time.

Bow River Forest Reserve:
1 superintendent.
1 clerk.
1 stenographer.
8 permanent rangers.
3 seasonal assistant rangers.
9 seasonal patrolmen.
5 lookout men, part–time.
1 telephone operator, part–time.

Clearwater Forest Reserve:
1 supervisor.
1 clerk.
1 forest engineer.
3 permanent rangers.
9 seasonal assistant rangers.
2 lookout men, part–time.
1 telephone operator, part–time.

Brazeau Forest Reserve:
1 supervisor.
1 clerk.
4 permanent rangers.
5 seasonal assistant rangers.
3 lookout men, part–time.
2 patrolmen, part–time.

Athabaska Forest Reserve:
1 supervisor.
3 permanent rangers.
6 seasonal assistant rangers.
1 lookout man, part–time.
1 labourer clerk, part–time.

Lesser Slave Forest Reserve:
1 supervisor.
1 clerk.
3 permanent rangers.
7 seasonal assistant rangers.
4 lookout men, part–time.

PERSONNEL ESTABLISHMENT AFTER MARCH 31, 1932

Cypress Hills Forest Reserve:
1 permanent ranger.
1 part–time labourer.

Crowsnest–Bow River Forest Reserve:
1 clerk.
1 superintendent.
1 stenographer.
2 permanent rangers.
2 rangers, 8 mos. at $150.00 and 4 mos. at $75.00.
11 seasonal rangers.
11 seasonal assistant rangers.
8 lookout men, part–time.
1 patrolman, part–time.
1 telephone operator, part–time.

Clearwater Forest Reserve:
1 superintendent.
1 clerk.
1 permanent ranger.
2 seasonal rangers.
9 seasonal assistant rangers.
2 lookout men, part–time.
1 telephone operator, part–time.

Brazeau–Athabaska Forest Reserve:
1 supervisor.
1 clerk.
1 permanent ranger.
1 ranger, 8 mos. at $150.00 and 4 mos. at $75.00.
6 seasonal rangers.
11 seasonal assistant rangers.
4 lookout men, part–time.

Slave Lake Division of the Northern Alberta Forest District (includes only personnel required for former Lesser Slave Forest Reserve which makes up a portion of Lesser Slave division):
1 timber inspector.
5 seasonal fire rangers.
4 lookout men, part–time
1 telephone operator, part–time.

Northern Alberta Forest District.

Within the Northern Alberta forest district the area was and is divided into ranger districts in which seasonal rangers are employed during the period of the fire season. Prior to April 1st, 1932, these ranger districts were grouped for purposes of supervision into four fire ranger sub-districts with a sub-chief ranger in charge of each group. Under this arrangement it was not possible to provide for a satisfactory degree of supervision for the reason that the area within each sub-district was extremely large with communication in the majority of instances non-existent and travel by available means very slow.

In the spring of 1932 it was decided that the Forest Service of the Department of Lands and Mines should assume responsibility for all administration and field work in connection with the timber resources of the Province. Prior to that time all work connected with timber operations outside of the forest reserves was dealt with by the Lands Division of the Department. The Forest Service head office staff was accordingly augmented to deal with the departmental records and correspondence taken over from the Lands Division, and the chief timber inspector and all timber inspectors were transferred to the Forest Service. Two sub-chief fire rangers were made timber inspectors. All Crown timber agency office work continued to be handled by the respective land agents with the exception of records of inspection work.

The transfer of timber inspectors had also in view the correction to some extent of the situation previously referred to in respect to field supervision of rangers. Accordingly the ranger districts were re-grouped into smaller groups, now called divisions, and a timber inspector placed in charge of each group for purposes of forest protection and timber inspection. Eight such divisions were formed, which had the result of very considerably reducing the area under supervision of each timber inspector as compared with that previously supervised by the sub-chief rangers, and likewise this move reduced the number of rangers under each supervisory officer.

The result of this re-organization in the Northern Alberta forest district is already apparent, both in the timber inspection work or what might be termed field administration of timber operations and in a betterment of protection effort. While timber inspection work is now on a better basis than heretofore, and is receiving satisfactory attention, much remains to be accomplished on protection work. This is equally true both in respect to fire prevention and fire suppression.

A large percentage of the areas within the forest reserves are absolute forest lands, that is, lands suited only to the growing of trees. As a result of this, the organization built up to administer these areas is concerned primarily with matters relating to the practice of forestry and, in the main, forestry in its various branches is the first concern. It is, therefore, understandable that within the forest reserves the effort towards forest protection is emphasized, and that every reasonable effort is made towards fire prevention and fire suppression, and that the use of resources found within the reserves is regulated by the requirements of forest protection and with the improvement of the present forest in view. Facilities for communication and fire detection have been installed, and routes

of travel consisting of roads and trails have been constructed. Field headquarters for rangers and other officers have been built at locations suitable for administrative and protective purposes, and equipment for the maintenance of these improvements and for fire-fighting purposes made available.

In the Northern Alberta forest district the situation is very different. In this large district there are many areas of land suitable for agricultural purposes though bearing at the present time stands of timber in various stages of growth. For many years the forest area has been receding before the advances of land settlement, and this movement will continue so long as suitable agricultural lands are found within reasonable distance of transportation. Settlement directly and indirectly has been responsible for the large reduction in the forested area of the Province, first through the clearing of lands filed on and then by the large number of fires originating from land clearing operations which are allowed to run unchecked and thus destroy large areas of valuable forest. Timber operations, resulting in the removal of forest cover, have made considerable areas available for settlement. Thus the situation in respect to large tracts of land is gradually changing, and the final disposition of many areas now bearing tree growth will eventually be for agricultural purposes. Under such circumstances the formation of an organization such as is found in the forest reserves is not justified for the entire area. It should be understood, however, that within the Northern Alberta forest district a large percentage of land is useful only for the growing of trees, and that for such areas proper protection should be arranged as quickly as funds will allow. In so far as those districts having soil suitable for agriculture but now bearing valuable tree growth are concerned, adequate protection should be provided until the lands are disposed of for the purpose best suited so that the timber now upon such lands may eventually be utilized and incidentally turned into revenue.

In the northern district, excepting the area formerly known as the Lesser Slave forest reserve, there is a distinct lack of those improvements or developments so essential to successful forest protection. The only routes of travel are those used by the original inhabitants supplemented by trails opened by surveyors, trappers and settlers. The only communication existing is that which has developed as a result of settlement requirements. There are no trails, roads, telephone or telegraph lines built specially to answer the purposes of forest protection and administration. Fire detection except by the old method of patrol is non-existent and equipment is insufficient. In addition the protective force has remained at practically the same strength for the past twelve or fourteen years, and, in this period, settlement has greatly increased followed by those developments which appear with the settlement of almost any territory. Railways, highways, roads and trails have been built, opening new districts. Land settlement has resulted in many people entering such territory and establishing homes there. Towns and villages have sprung up and settlement at many points is now encroaching on the forest, and is in some cases established on the poorer classes of soil found in the vicinity of many of the forest districts. When it is known that of the total of all fires well over 90% are caused by human beings, it will be realized that the present

protective force and the organization and equipping of areas to be protected from fire is altogether inadequate.

In many sections of the country there is an apparent lack of what might be termed forest consciousness. The individual, in many instances where his operations may have a direct and serious effect on his neighbours, is too prone to consider his actions only as they affect himself. When such reasoning or carelessness is present in dealing with fire, the result is often the loss of private and public property, and occasionally persons are seriously injured or lose their lives.

PERSONNEL ORGANIZATION AND COSTS
(Salaries and wages only)

HEAD OFFICE:	
Director of Forestry; Assistant Director of Forestry; Chief Timber Inspector; Timber Investigator	$ 11,525.00
NORTHERN ALBERTA FOREST DISTRICT:	
Edmonton Division, 1 timber inspector, 5 seasonal rangers; Bonnyville Division, 1 timber inspector, 2 seasonal rangers; Edson Division, 1 timber inspector, 5 seasonal rangers; Athabaska Division, 1 timber inspector, 5 seasonal rangers; Peace River Division, 1 timber inspector, 6 seasonal rangers; Slave Lake Division, 1 timber inspector, 10 seasonal rangers, 4 lookout men (part–time), 1 telephone operator (part–time); Grande Prairie Division, 1 timber inspector, 7 seasonal rangers; Fort McMurray Division, 1 timber inspector, 8 seasonal rangers	44,872.66
CROWSNEST–BOW RIVER FOREST RESERVE:	
1 superintendent, 1 clerk, 1 stenographer, 2 permanent rangers, 13 seasonal rangers, 11 seasonal assistant rangers, 8 lookout men (part–time), 1 patrolman (part–time), 1 telephone operator (part–time)	32,521.16
CLEARWATER FOREST RESERVE:	
1 superintendent, 1 clerk, 1 permanent ranger, 2 seasonal rangers, 9 seasonal assistant rangers, 2 lookout men (part–time), 1 telephone operator (part–time)	14,836.42
BRAZEAU–ATHABASKA FOREST RESERVE:	
1 supervisor, 1 clerk, 1 permanent ranger, 7 seasonal assistant rangers, 4 lookout men (part–time)	23,349.64
CYPRESS HILLS FOREST RESERVE:	
1 permanent ranger, 1 part–time labourer	2,085.75
TOTAL	$129,190.63

DISTANCE IN MILES TRAVELLED BY FIELD OFFICERS OF THE NORTHERN ALBERTA FOREST DISTRICT AND BRAZEAU–ATHABASKA FOREST

Method of Travel	Miles Travelled: Northern Alberta Forest District	Miles Travelled: Brazeau–Athabaska Forest
Foot	13,332	2,073
Saddle	46,197	16,948
Driving (horses)	18,656	.....
Auto	83,876	595
Speeder	16,044	5,588
Canoe	11,273	.....
Rowboat	602	.....
Motorboat	23,330	.....
Aeroplane	.....	.....
Railway	14,922	4,218
TOTALS	228,232	29,422

In the Northern Alberta Forest District there were 48 Fire Rangers and 9 Timber Inspectors, a total of 57 men.

In the Brazeau–Athabaska Forest there were 4 Lookout men, 18 Rangers and 1 Supervisor, 23 men in all.

The mileage shown above is for point to point travel only.

SUMMARY OF WORK DONE BY FIRE RANGERS AND TIMBER INSPECTORS NORTHERN ALBERTA FOREST DISTRICT

Improvements, new construction	141½	man–days
Improvements, maintenance	482¾	"
Nursery	28	"
Fire–fighting	715½	"
Fire patrol	5,792¼	"
Timber	1,310	"
Fish patrol	1½	"
Miscellaneous executive duties	1,155¾	"
Care of equipment	551½	"
Haying	18½	"
Travel	136½	"
TOTAL	10,333¾	"

This is an analysis of the time worked by 48 rangers and 9 timber inspectors. The office work done by the latter contributes largely to the amount of time charged to "miscellaneous executive duties."

Forest Protection

Forest protection in its broadest sense covers the protection of forests from any destructive agency. In this Province the protective effort is directed towards a reduction of forest losses from fires. Although there is a possibility of losses from other causes, such loss has up to the present been negligible.

Examination of the causes of forest fires over a period of many years clearly points to the fact that human activities are principally responsible for these losses. The percentage of fires caused by such activity fluctuates very slightly from year to year, but a great variation in the number of fires and the extent of forest destruction is noted from year to year. It is apparent that the cause is ever-present, and only requires particular circumstances to produce the effect.

Providing that other influencing factors remain normal, weather, which produces conditions favourable for the ready ignition and quick spread of fire, is responsible more than any other factor for fluctuation in the number of fires occurring annually and for the amount of destruction caused as a result. The weather during the year under review was very favourable for forest protection purposes. Snowfall over the forested territory of the Province varied somewhat. In the southern mountain section it was below normal. Over the northern mountain section and extending over the Northern Alberta forest district, the snowfall was apparently slightly abnormal, the greatest fall being in the late winter and early spring months. There was no spring fire danger period in the mountain section due to these late storms. The situation in this area which makes up the Rocky Mountains forest reserve was reasonably safe until towards the end of July.

In the Northern Alberta forest district the fire situation was satisfactory until May 1st to 10th. The snow had practically all melted by April 25th, and in this district where settlement crowds in on the forest, fire danger followed closely on the disappearing snow. The spring danger period opened later than usual, and as late spring and early summer rains made their appearance at the usual time followed by a good growth of annual plants, this danger period was comparatively short, closing out from June 1st to June 15th.

The fire season was then fairly safe over the Province until towards the end of July excepting that part north of township 90 on the west and north of township 100 on the east. At this time the mountain and foothill section was becoming dry, and this danger period continued until August 10th in the north and to August 22nd in the south.

The fall danger period varied somewhat due to the absence of general precipitation. It may be stated that September and the early part of October constituted a provincial-wide danger period, although in some localities limited relief was provided by rainfall. The fire season closed from October 12th to November 1st, depending on the locality.

The season was very favourable from the standpoint of forest protection. Precipitation was well distributed both over the area and through the season. The result was that the danger periods

were not so lengthy as to allow a fire situation to develop with which the regular field staff could not cope.

Fire Prevention.

In view of the fact that almost all forest fires are caused by human agencies, it follows that preventive efforts must be directed towards the control of those human activities from which fire may originate.

Within the forest reserves such control is exercised, but always with due regard to the freedom and enjoyment of the individual. All forest travellers are required to secure camping or travelling permits which are issued free in order to enjoy such privilege which, in addition to answering requirements of the Service in the matter of control and check, also opens the way for a contact between the traveller and the forest officer concerned which is utilized for providing advice and warning. Registration points suitably equipped for this purpose are also established at convenient points, and are used in conjunction with and supplementary to the free camping and travel permit for the purpose of securing important and necessary information. It is essential that the ranger and his assistants should know who are in the district and where the parties are located. With such information at hand the lookout men can watch areas where destructive fires may start from unextinguished camp fires.

In the more popular camping districts camp grounds are being improved. Debris and underbrush is removed, and in some instances safe fire-places have been provided. This development will gradually have the effect of segregating camping to suitable and safe camp grounds. A further improvement will no doubt be the restriction of open fires to authorized camp grounds. All commercial activities within the reserves are regulated by suitable conditions with regard to the prevention of fire. As a result, such developments have presented a minimum of danger.

Within the fire ranging districts of the Northern Alberta forest district control of human activities is more difficult and the degree of control is not so satisfactory as that obtaining within the forest reserves. This situation is explained by the basic legislation affecting the use of these lands and by the scant field organization. Before satisfactory forest protection can be arrived at it is necessary that the forest area to be protected be placed under control of the protective organization. Reasonable control of campers within the Northern Alberta forest district is not possible under prevailing conditions. One of the greatest menaces to the forest in this district is the uncontrolled settler's fire. Authority for control of burning operations is placed in the hands of the Forest Service, and during the period April 1st to December 1st fires shall only be set under authority of a burning permit. The burning permit will be issued only when conditions for burning are safe, and the necessary fire-guards established with the required assistance and equipment on hand. A more intensive use of the burning permit will undoubtedly be followed by a reduction in the number of destructive fires.

These free permits are issued in the Northern Alberta forest district by the rangers, assisted by officers of the Royal Canadian Mounted Police and by honorary fire guardians appointed for this

purpose. The effort has been to make it possible for settlers to secure the permit with a minimum of trouble, and while the situation in this respect is not all that is desired, it is being improved upon gradually.

The fire permit and the conditions to be fulfilled under its terms is therefore one of the chief preventive measures within the Northern Alberta forest district. With this is linked a ranger patrol through settlements adjacent to forested territory. On these patrols advice regarding clearing fires is given and permits issued.

The construction and operation of railways has always proved to be a source of possible danger to forests. Improvement in this regard has been gradual and satisfactory in the past number of years. The annual burning of right of way debris, the use of good grade coal, the extra width of right of way cleared through hazardous sections within the forest reserves and the use of up-to-date fire prevention appliances have greatly reduced the danger. Forest Service officials under appointment from the Board of Railway Commissioners assist in the control of the fire hazard arising from railway operation. Officials of the Board render valuable assistance, and railway officials and employees co-operate with this Service in a highly satisfactory manner.

PRAIRIE FIRES ACT—STATEMENT OF BURNING PERMITS ISSUED

By fire guardians working within municipal districts, not appointed by the Forest Service			691
By the Royal Canadian Mounted Police			134
By honorary fire guardians appointed by the Forest Service, working in or adjacent to the divisions named:			
Forest Reserves:			
Crowsnest–Bow River	9		
Clearwater	5		
Sub–total		14	
Northern Alberta Forest District:			
Edmonton	163		
Edson	99		
Athabaska	132		
Bonnyville	4		
McMurray	....		
Slave Lake	23		
Grande Prairie	238		
Peace River	50		
Sub–Total		709	
			723
By members of the Alberta Forest Service:			
Head Office	3		
Clearwater	346		
Edmonton	148		
Edson	276		
Athabaska	76		
Bonnyville	....		
McMurray	13		
Slave Lake	118		
Grande Prairie	155		
Peace River	....		
Total			1,135
GRAND TOTAL			2,683

Fire Detection.

Methods of forest fire detection within this Province vary from the very efficient lookout system established over the major portion of the Rocky Mountains forest reserve and over that area which was known as the Lesser Slave forest reserve to systematic ranger patrol by saddle horse, canoe, power boat, power speeder or on foot. There was no change in or addition to detection services during the year. Some curtailment of these services was arranged in that it was decided to discontinue the employment of extra patrolmen

formerly employed during dangerous periods in many fire ranging districts of the Northern Alberta forest district.

Fire Suppression.

Fire suppression operations were on a more satisfactory footing than in the previous year. While the field staff in the majority of instances showed improvement in directing suppression action, it must be admitted that in many ways the season under discussion was in no way comparable with the fire season of 1931. That an improvement is noted and that further improvement will be made is admitted, but suppression operations will not reach the degree of efficiency so much desired until a very considerable alteration is made in detection services, communication and transportation. An adequate supply of fire-fighting equipment is necessary with this objective in view, together with the employment of a well trained and supervised field staff in sufficient numbers to properly deal with the problem.

During the year the Forest Service dealt with 379 fires, which burnt over 136,117.89 acres. Of this area 68,253.42 acres were non-forested land. The total loss of timber, both merchantable and young growth, was estimated at $160,151.31. Cost of suppression was $15,653.46 for outside services, supplies, etc., with cost of ranger service $3,158.09, making a total of $18,811.55. There were no fires in the Cypress Hills forest reserve. Of the total number in the Province, 153 were designed class A, burning less than one-quarter of an acre. This is a fairly clear indication of the value of ranger services. Everyone of these small fires discovered and extinguished represented an incalculable saving in forest resources and suppression costs. The total of small fires as represented by classes A and B (the latter over one-quarter of an acre and under ten acres) was 244, and the ratio of small fires to large fires, the latter as represented by classes C and D and totalling 135, is reasonably satisfactory as compared with 1931 operations. From the point of view of forest protection the situation is not satisfactory, but cannot be greatly remedied until funds for organization, improvements and equipment are made available.

Fire Causes.

SUMMARY OF FOREST FIRE LOSSES BY CAUSES WITHIN AND OUTSIDE ALBERTA FOREST RESERVES—CALENDAR YEAR 1932

Cause	No.	Per Cent.	Cost of Suppression	Area (in acres)	Salvable Timber M–F.B.M.	Salvable Timber Cords	Unsalvable Timber M–F.B.M.	Unsalvable Timber Cords	Total Loss
Campers	200	52.78	$10,130.11	51,550.19	28.75	10,260.00	28,922.70	76,526.00	$ 89,098.63
Smokers	20	5.28	265.67	2,522.00	75.00	50.00	2.00	352.00	257.75
Settlers	65	17.15	1,485.78	41,346.00	115.00	1,635.00	3,042.25	7,370.00	10,752.00
Railways	17	4.48	41.28	276.25	.....	.....	.....	.....	26.25
Lightning	10	2.64	380.07	1,704.75	30.00	35.00	3,877.20	15.00	4,178.38
Industrial operations	4	1.05	22.02	16.50	.....	2.00	.....	.....	4.75
Incendiary	31	8.18	3,775.03	6,610.85	23.00	13,401.00	2.00	3,215.60	10,896.80
Public works	2	.53	18.21	3.25	.....	.....	2.00	40.00	25.50
Unclassified	6	1.58	89.97	960.60	.....	15.00	720.00	.....	3,240.00
Unknown	24	6.33	2,603.41	31,127.50	11.00	2,680.00	7,904.00	46,230.00	42,396.25
TOTALS	379	.....	$18,811.55	136,117.89	282.75	28,078.00	44,472.15	133,748.60	$160,876.31

SUMMARY OF FOREST FIRE LOSSES WITHIN ALBERTA FOREST RESERVES—CALENDAR YEAR 1932

Campers	9	28.12	$1,831.94	1,001.30	.....	10,000.00	1.00	.....	$3,757.75
Smokers	3	9.37	3.62	2.50	.....	.....	2.00	.....	2.00
Settlers	....	.....	.....	.....	.....	.....	.....	.....	.....
Railways	6	18.75	11.48	.75	.....	.....	.....	.....	.....
Lightning	7	21.87	236.86	1,292.75	.....	.....	3,840.00	.....	3,849.93
Industrial operations	1	3.13	.....	1.00	.....	2.00	.....	.....	4.75
Incendiary	5	15.63	1,407.14	257.35	8.00	5,861.00	2.00	1,005.60	1,176.30
Public works	....	.....	.....	.....	.....	.....	.....	.....	.....
Unclassified	1	3.13	.....	.10	.....	.....	.....	.....	.....
Unknown	....	.....	.....	.....	.....	.....	.....	.....	.....
TOTALS	32	.....	$3,491.04	2,555.75	8.00	15,863.00	3,845.00	1,005.60	$8,790.73

SUMMARY OF FOREST FIRE LOSSES WITHIN THE NORTHERN ALBERTA FOREST DISTRICT—CALENDAR YEAR 1932

Campers	190	55.55	$8,271.25	50,548.82	28.75	260.00	28,921.70	76,526.00	$85,340.88
Smokers	17	4.97	262.05	2,519.50	75.00	50.00	.....	352.00	255.75
Settlers	65	19.01	1,485.78	41,346.00	115.00	1,635.00	3,042.25	7,370.00	10,752.00
Railways	11	3.22	29.80	275.50	.....	.....	.....	.....	26.25
Lightning	1	.29	42.51	400.00	.....	.....	.....	.....	250.00
Industrial operations	3	.88	22.02	15.50	.....	.....	.....	.....	.....
Incendiary	25	7.31	2,367.89	6,088.50	15.00	7,540.00	.....	2,210.00	9,720.50
Public works	2	.58	18.21	3.25	.....	.....	2.00	40.00	25.50
Unclassified	4	1.17	89.97	960.5	.....	15.00	720.00	.....	3,240.00
Unknown	24	7.02	2,603.41	31,127.50	11.00	2,680.00	7,904.00	46,230.00	42,396.25
TOTALS	342	100.00	$15,192.89	133,285.07	244.75	12,180.00	40,589.95	132,728.00	$152,007.13

SUMMARY OF FOREST FIRE LOSSES OUTSIDE ALBERTA FOREST RESERVES—CALENDAR YEAR 1932

(Includes fires within the Northern Alberta Forest District and those outside forest reserves acted upon by officers of the Forest Service)

Campers	191	55.04	$ 8,298.17	50,548.89	28.75	260.00	28,921.70	76,526.00	$ 85,340.88
Smokers	17	4.90	262.05	2,519.50	75.00	50.00	.....	352.00	255.75
Settlers	65	18.74	1,485.78	41,346.00	115.00	1,635.00	3,042.25	7,370.00	10,752.00
Railways	11	3.17	29.80	275.50	.....	.....	.....	.....	26.25
Lightning	3	.86	143.21	412.00	30.00	35.00	37.20	15.00	328.45
Industrial operations	3	.86	22.02	15.50	.....	.....	.....	.....	.....
Incendiary	26	7.49	2,367.89	6,353.50	15.00	7,540.00	.....	2,210.00	9,720.50
Public works	2	.58	18.21	3.25	.....	.....	2.00	40.00	25.50
Unclassified	5	1.44	89.97	960.50	.....	15.00	720.00	.....	3,240.00
Unknown	24	6.92	2,603.41	31,127.50	11.00	2,680.00	7,904.00	46,230.00	42,396.25
TOTALS	347	100.00	$15,320.51	133,562.14	274.75	12,215.00	40,627.15	132,743.00	$152,085.58

It will be noted that the two principal causes of fires during the year were campers and settlers. The movement of persons seeking employment has resulted in a considerable increase in conflagrations originating from unextinguished camp fires. Many of these persons are poorly equipped for camping purposes, and furthermore have had little experience in camping. It is also probable that a great many do not realize the importance of being careful with fire, or it may be that they realize this, but are just careless. This class of traveller does not account for all unextinguished camp fires. It is a curious fact that many regular and experienced campers who apparently enjoy camping are notoriously careless in this respect. The majority of travel occurs along the better trails, roads, highways, waterways and to a very considerable extent along railways. Under such circumstances regular patrols pick up the majority of these fires before they become so large that they are expensive and difficult to handle. It will be noted that of 200 fires originating from camp fires, 108 were extinguished before exceeding one-quarter of an acre and 35 before exceeding ten acres in size. It is not difficult to visualize the results which would obtain through a reduction or an increase in patrol intensity.

Fires originating from settlers' operations comprised 17.15% of the total, which was a considerable improvement on the 1931 situation. These 65 fires burnt over 41,346 acres as compared with 200 fires from campers burning over 51,550.19 acres. While an improvement over the showing of 1931 was readily apparent and may be explained to some extent by more strict enforcement of fire regulations, the important point is that over half of these fires were large ones. The difference between campers' and settlers' fires is that the camp fire, if left unextinguished, is small in size whilst the settler's clearing fire is usually quite large, and when this class of fire gets out of control it is difficult to deal with.

Fires of incendiary origin are next in importance in respect to percentage of the total number. The average loss caused by these 31 fires was in excess of the average loss caused by the 65 settlers' fires reported, but the damage to timber was only a little over 6% of the total fire damage.

Fires of unknown origin represented 6.33% of the total. Of these 24 fires, 13 were of classes A and B, or small in size. The remaining 11 were large, and burned over almost 42,396.25 acres, causing damage estimated at $31,127.50.

These were the four most important causes of fires during the year. While such causes are not completely controllable, it is possible by a more intensive organization to obtain much greater check over campers' and settlers' fires, and no doubt such control would be favourably reflected by a reduction in the number of and loss from fires of incendiary and unknown origin. These four causes accounted for 320 of the 379 fires, and burned over 130,634.54 acres of the total acreage of 136,117.89, causing an estimated damage of $153,143.68 of the total fire damage of $160,876.31. The suppression costs, including ranger services, were $17,994.33 of a total suppression cost for fires of all classes inclusive of ranger services of $18,811.55.

Smokers caused 5.28% of all fires. While in the matter of number, area burnt over, damage and cost of suppression the situation

in respect to fires from this cause shows some improvement, it does not reflect any credit on the people responsible.

Railway fires to the number of 17 represent 4.49% of the total, and are an important item. Of these fires, 16 were small ones of classes A and B, the other being class C. Here is an example of the result of well-directed prevention effort and an indication of the value of immediate reports followed by quick suppression action. Railway fires, once very numerous and among the most destructive, are now among the least troublesome of the protection problem. This comes about through the work of officials of the Board of Railway Commissioners, assisted by officers of the Forest Service and through the efforts of railway officials and employees. A degree of co-operation exists between all concerned which is very satisfactory indeed.

RAILWAY FIRE LOSSES WITHIN THE PROVINCE OF ALBERTA
CALENDAR YEAR 1932

(Includes only fires in railway patrol territory)

NOTE.—Railway fires are fires originating or burning to within 300 feet of the centre line of the right of way of a railway. Railway fires occurring in forested areas under the supervision of the Alberta Forest Service are summarized here.

	Northern Alberta Railways	Canadian National Railways	Canadian Pacific Railway	Totals
CAUSES AND NUMBER OF FIRES:				
Locomotives	2	6	.....	8
Railway employees	5	2	.....	7
Campers and travellers	25	.....	.....	25
Settlers	17	.....	.....	17
Unclassified	2	1	.....	3
Unknown	1	.....	.....	1
Totals	52	9	.....	61
NUMBER OF ACRES BURNED:				
Merchantable timber	2,143	.....	.....	2,143
Slashing or old burn	13	7.5	.....	20.5
Young growth	79	170	.....	249
Not forested	309	80.75	.....	389.75
Totals	2,544	258.25	.....	2,802.25
LOSS:				
Timber	$1,001.00	.....	.....	$1,001.00
Young growth	472.00	$68.75	.....	540.75
Other property	4.00	.....	.....	4.00
Totals	$1,477.00	$68.75	.....	$1,545.75

ANNUAL STATEMENT OF FIRES BY CAUSES, MONTHLY DISTRIBUTION, ETC., ALBERTA, FOR THE YEAR 1932

Cause	Number						Damage	Area	Monthly Distribution														Prosecutions	Convictions	Fires Inside Nat. Forests		Fires Outside Nat. Forests	
	A	B	C	D	Tot.	P.C.		Acres	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.			No.	Area Acres	No.	Area Acres
Camp-fires	108	35	36	21	200	52.77	$ 89,098.63	51,550.19	1	....	....	2	24	33	15	36	51	31	5	2	....	....	9	1,001.30	191	50,548.89
Smokers	5	8	6	1	20	5.28	257.75	2,522.00	....	....	....	1	10	....	3	5	....	1	....	....	....	....	3	2.50	17	2,519.50
Settlers	9	20	23	13	65	17.15	10,752.00	41,346.00	....	....	....	....	33	3	1	4	14	10	....	....	1	1	....	.....	65	41,346.00
Railways	7	9	1	....	17	4.49	26.25	276.25	....	....	....	2	4	2	2	2	....	5	....	....	....	....	6	.75	11	275.50
Lightning	2	5	2	1	10	2.64	4,178.38	1,704.75	....	....	....	....	....	1	5	4	....	....	....	....	....	....	7	1,292.75	3	412.00
Industrial Operations	1	2	1	....	4	1.05	4.75	16.50	....	....	....	....	2	1	1	....	....	....	....	....	....	....	1	1.00	3	15.50
Incendiary	7	6	14	4	31	8.18	10,896.80	6,610.85	....	....	....	1	11	5	2	4	3	5	....	....	....	....	5	257.35	26	6,353.50
Public Works	1	1	....	....	2	.53	25.50	3.25	....	....	....	....	....	1	....	....	....	1	....	....	....	....	....	.....	2	3.25
Unclassified	4	1	....	1	6	1.58	3,240.00	960.60	....	....	....	....	3	1	....	2	....	....	....	....	....	....	1	.10	5	960.50
Unknown	9	4	8	3	24	6.33	42,396.25	31,127.50	....	....	....	1	5	4	5	1	3	5	....	....	....	....	....	.....	24	31,127.50
Totals	153	91	91	44	379	100	$160,876.31	136,117.89	1	....	....	7	92	51	34	58	71	58	5	2	1	1	32	2,555.75	347	133,562.14
Per cent.	40.22	24.07	24.07	11.64	100				.26	....	....	1.85	24.38	13.46	8.97	15.30	18.73	15.30	1.32	.53						

NATURE OF FOREST FIRE LOSSES WITHIN AND OUTSIDE FOREST RESERVES OF ALBERTA—CALENDAR YEAR 1932

Note: Class A fires are 0 to ¼ acre; Class B, ¼ to 10 acres; Class C, 10 to 500 acres; Class D, over 500 acres.

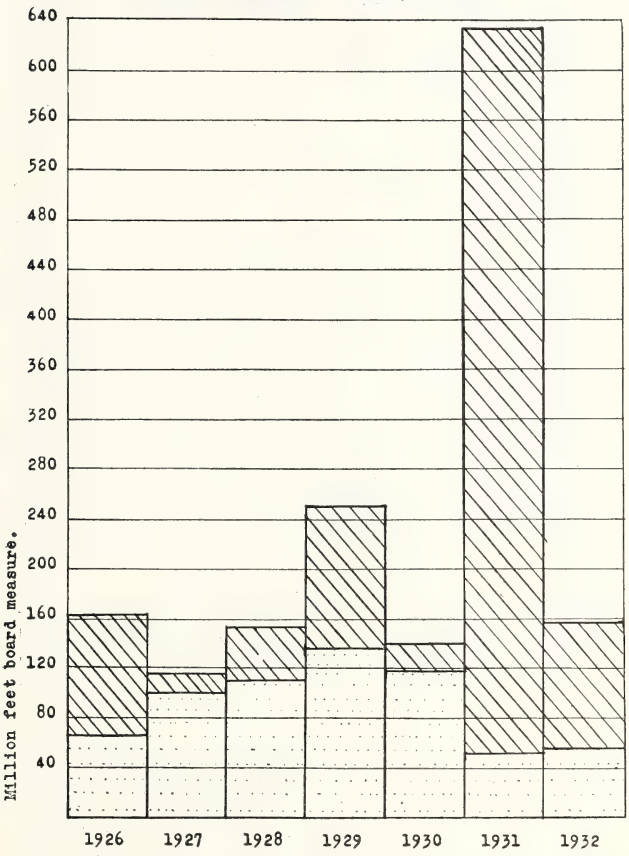
Forest or District	No.	Per Cent.	Sizes of Fires				Ownership (area in acres)			Nature of Loss			
			A	B	C	D	Public	Private	Total	Merchantable Timberland	Cut-over Timberland	Young Growth	Not Forested
Cypress Hills Forest	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Crowsnest–Bow River Forest	11	2.90	3	6	1	1	1,254.15	3.25	1,257.40	1,029.80	59.10	84.85	83.65
Clearwater Forest	5	1.32	3	.....	2	.....	.....	275.00	275.00	100.00	25.00	150.00	.....
Brazeau–Athabaska Forest	21	5.54	14	6	.....	1	1,300.42	.....	1,300.42	1,282.55	7.73	7.32	2.82
Northern Alberta Forest District	342	90.24	133	79	88	42	98,779.57	34,505.50	133,285.07	31,004.87	6,705.00	27,408.25	68,166.95
TOTALS	379	100.00	153	91	91	44	101,334.14	34,783.75	136,117.89	33,417.22	6,796.83	27,650.42	68,253.42
Percentages		.....	40.37	24.01	24.01	11.61	74.44	25.56	100.00	24.56	4.99	20.31	50.14

SUMMARY OF FOREST FIRE LOSSES WITHIN AND OUTSIDE ALBERTA FOREST RESERVES—CALENDAR YEAR 1932

Forest or District	No.	Per Cent.	Cost of Suppression	Area (in acres)	Salvable Timber M–F.B.M.	Salvable Timber Cords	Unsalvable Timber M–F.B.M.	Unsalvable Timber Cords	Total Loss
Cypress Hills	.....	.....	.....	.....	.....	.....	.....	.....	.....
Crowsnest–Bow River	11	2.90	$ 3,142.87	1,257.40	8.00	15,863.00	2.00	929.60	$ 4,879.98
Clearwater	5	1.32	81.46	275.00	30.00	35.00	30.00	15.00	71.25
Brazeau–Athabaska	21	5.54	394.33	1,300.42	.....	.....	3,850.20	76.00	3,917.95
Northern Alberta Forest District	342	90.24	15,192.89	133,285.07	244.75	12,180.00	40,589.95	132,728.00	152,007.13
TOTALS	379	.....	$18,811.55	136,117.89	282.75	28,078.00	44,472.15	133,748.60	$160,876.31

GRAPH OF TIMBER DEPLETION, PROVINCE OF ALBERTA

CALENDAR YEARS 1926 to 1932, inclusive



During this period, the total depletion was 1,609,144,780 F.B.M. of which 39.43% was utilized and 60.57% lost by fire.

Legend: Timber Lost by fire
Timber utilized

Personnel.

All the personnel of the Forest Service excepting some of the head office staff engaged on timber administration are responsible for some phase of forest protection work. Protection is the most important duty of the field staff and the various phases of this work engage more of their time than any other problem.

Territory coverage by field staff remained at practically the same intensity as in previous years excepting that patrolmen were not provided to assist various rangers in the Northern Alberta forest district. While coverage has remained the same for a considerable period of years, various hazards have increased tremendously during this time. Staff strength on the forest reserves is fairly satisfactory, but the field staff as employed in the Northern Alberta forest district is below requirements.

Fire-Fighting Equipment.

The supply of equipment specially for the purpose of fire-fighting is a matter of some concern. Practically all such material on hand today came into the possession of this Service through transfer from the Federal Forest Service. While almost all of this equipment was in good condition at the time of transfer, some of the pump units were obsolete and practically useless. Two fire seasons have passed since this material was transferred to the provincial service, one of which was a very busy one and the other sub-normal from the point of view of fire-fighting. During this period a considerable amount of equipment has been worn out, lost or destroyed, and has therefore been written off the records. Full replacement of this write-off has not been made. There is a real need of further pumping units, hose, water pack bags and pumps, canvas in the form of tents and tarpaulins and various hand tools.

Equipment is being stored and maintained in a satisfactory way. Storage facilities are fairly satisfactory in most divisions, and are adequate for present supplies. Distribution under the circumstances is reasonably good.

Co-operation.

One of the most satisfactory co-operative arrangements is that which exists between this Service, the Board of Railway Commissioners and the railways. The results secured here are evident on examination of the fire statistics. A comparison with the conditions obtaining a number of years ago will show that the situation in respect to railways has improved to such an extent that railway operation is no longer one of the principal fire hazards.

A co-operative arrangement is also in effect between the Dominion Parks Branch and this Service. The results are highly satisfactory and, it is believed, have been mutually beneficial.

Valuable help has also been received from the Royal Canadian Mounted Police, particularly in the matter of issuing burning permits. Co-operation is mutual with other government departments, and is of considerable benefit to all concerned, but particularly to the Fisheries Division and the Game Branch. The Service is also indebted to many fish and game associations for

support and for active assistance and to many individuals, not in any way connected with the Service, for help in different directions.

The group of public-spirited men who have accepted appointments as honorary fire guardians in order to further the work of fire protection, and also in order that their neighbours may secure permission to burn for land clearing purposes without undue delay and with a minimum of trouble, have been of great assistance to the Service. It is hoped that further appointments will be made to the end that control of settlers' fires will be placed on such a basis that forest fire hazard from settlement of land will be greatly reduced.

Improvements

The term improvements covers such projects as roads, trails, telephone lines, buildings and miscellaneous items constructed with a view to organizing and bettering the protective and administrative effort.

Within the forest reserves and that area previously known as the Lesser Slave forest reserve many improvements were constructed. The major portion of those required for these areas is completed excepting a portion of the former Lesser Slave forest reserve. Since the transfer of the resources new construction work has been practically at a standstill, but maintenance has been dealt with in a reasonably satisfactory manner by the regular staff. The large reduction in the permanent ranger staff and the period of employment of seasonal men will no doubt be reflected in the condition of certain improvements. It is known that telephone lines during the past winter became unusable over large sections and that buildings, especially houses, cabins and barns at vacated stations suffered to some extent.

The principal new projects were dealt with by unemployment relief camps. These were located within the Crowsnest-Bow River forest, being the Red Deer road and the buildings required for the Red Deer ranger station unit, and within the Clearwater forest in the construction of the new road from Nordegg west up the North Saskatchewan river valley.

The weather obtaining last winter was not particularly favourable for road work at the higher altitudes, but on all the projects quite satisfactory results were obtained. The reports of the officials directly concerned with these improvements deal with the work involved and the progress made.

EXISTING IMPROVEMENTS USED BY THE ALBERTA FOREST SERVICE

NOTE: All improvements listed within the forest reserves have been constructed by the Forest Service. Most of the improvements shown in the Northern Alberta Forest District are on the former Lesser Slave Forest Reserve, and were built by this organization. The Northern Alberta Forest District rangers use and maintain many miles of trail which they did not construct, and which are not listed.

Forest or District	Shops, Caches and Sheds	Trails (miles)			Roads (miles)	Telephone Lines (miles)	Cabins	Lookout Towers and Cabins	Ranger Station Houses	Stables	Corrals
		Primary	Secondary	Auxiliary							
Cypress Hills	5	.....	.....	.....	31.12	13.00	1	....	1	2	1
Crowsnest–Bow River	34	670.50	388.50	211.00	275.80	473.85	40	8	17	27	20
Clearwater	9	664.75	155.50	.25	50.00	183.00	26	3	3	4	4
Brazeau–Athbasca	19	365.50	316.80	57.50	37.75	206.80	32	4	7	9	11
Northern Alberta Forest District	15	416.62	444.50	366.12	.....	108.75	29	8	3	4	....
TOTALS	82	2,117.37	1,305.30	634.87	394.67	985.40	128	23	31	46	36

Forest or District	Fences (miles)	Summer Resorts	Water Supply Systems	Fire–guards (length in yds.)	Bridges	Bunk–houses	Ferries	Gateways	Granaries	Offices	Dams
Cypress Hills	6.00	1	2	7,920	....	...	....	....	....	....	1
Crowsnest–Bow River	59.00	....	12	.....	8	3	....	4	1	....	....
Clearwater	15.75	....	3	.....	1	1	1	2	....	....	....
Brazeau–Athabaska	19.00	....	4	25,198	2	1	....	....	....	1	....
Northern Alberta Forest District	14.00	....	2	.....	....	....	....	....	....	1	....
TOTALS	113.75	1	23	33,118	11	5	1	6	1	2	1

Equipment

In view of the existing conditions of financial stringency, the purchase of equipment either as an addition to that already on charge or as a replacement was purposely kept low. In order that the travel of inspectors be placed on a uniform and economical basis, low-priced motor cars of a popular make were purchased, one for each division requiring them and one for the Chief Timber Inspector. Seven motor cars were purchased.

The patrol boat operated on the Peace River was replaced by one of better design and construction. The old boat was very unsatisfactory, the hull, in addition to other defects, being unsafe due to ice damage caused on a late patrol. Boats are not the best means of patrol, and on the Peace River travel and transportation by boat is not as extensive as it once was. Until better means are provided, however, the boat patrol should be maintained.

One new fire-fighting engine was added to the equipment, and 10,000 feet of special forestry linen hose was purchased. A considerable number of engines now on charge are obsolete, and should be replaced by up-to-date pumping units as soon as possible. The hose was purchased partly as a complement to the new pumping unit and partly for the replacement of hose which was worn or damaged in fire-fighting.

The forest reserves are fairly well provided with fire-fighting equipment, but more is needed, and obsolete equipment should be replaced. The distribution here is quite good and storage and maintenance are satisfactory.

A reverse situation exists in the Northern Alberta forest district, where there is a very real lack of all kinds of equipment. The facilities for storage at present are only at division headquarters, so that distribution cannot be satisfactorily arranged and maintenance in many instances cannot be kept in hand. This situation exists in all the divisions of the Northern Alberta forest district excepting Lesser Slave, part of which was previously operated as forest reserve. In the Wabasca subdivision of Lesser Slave, however, there also exists a lack of equipment.

Silviculture

Utilization of Forest Resources.

The changing of raw forest resources into manufactured material suitable for a variety of uses is a matter of vital interest to the Forest Service. Of primary interest is the initial operation connected with this manufacture, though if payment of timber dues is based on the sawn material when sold, it is then necessary to exercise a degree of control to that point. Beyond this, control is unnecessary, but interest in manufacturing processes and in the final products developed is essential in order that markets affecting the sale of such products and which, therefore, in turn affect the sale of the raw material by the Department, may be known and if possible extended.

In view of the fact that forests are a replaceable resource, it is essential that operations, having in view the taking of merchantable timber, should be governed by procedure that will influence

the natural restocking of cut-over areas and, as such merchantable timber is a source of revenue, it is equally important that the interests of the Department should be protected. Regulations designed to control timber operations in the interest of forest management and to protect the welfare of the Department have been developed over a period of years, and these are amended or changed from time to time when it is found that such changes are required by the industry, the settler or by the Department. Thus it is found that during the past year certain amendments were placed in the regulations with a view to encouraging the salvage of timber destroyed by fire.

The regulations governing the disposal of timber within forest reserves as compared with those covering such disposal in outside areas are somewhat dissimilar. This matter is under review, and it is hoped that a similarity of all timber regulations for the Province will be effected shortly. Uniformity viewed from any angle would be highly desirable in its provision for effective administration, and in its creation of a better understanding by those connected with the timber industry.

Timber Operations.

Again, as in the two preceding years, timber operations were carried on much below the normal rate of activity. Market conditions for forest products continued to be discouraging, with the result that many of the larger operators greatly curtailed or temporarily discontinued activity. A considerable number of small operations were in force, applicants for timber permits being fairly numerous, with the result that many inspections were required.

The change in organization whereby timber inspectors, in addition to the field administration of timber operations, became responsible for forest protection within defined areas provided for contact with all phases of forestry field work and thus produced better results than it has been possible to obtain heretofore. The change has made it possible to broaden the use and responsibility of the rangers in the Northern Alberta forest district in that they can be of assistance to the inspectors on certain classes of timber inspection duties.

In addition to the work already outlined, the inspectors are given other departmental assignments not directly connected with the Forest Service such as hay permits, homestead inspection and other duties which might be transacted without too greatly interfering with their regular work.

STATEMENT OF TIMBER OPERATIONS ON PROVINCIAL AND SCHOOL LANDS
APRIL 1st, 1932, TO MARCH 31st, 1933

	Licensed Timber Berths	Permit Timber Berths	Provincial Lands Timber Permits	School Lands Timber Permits
Number of active operations	41	115	2,406	130
Lumber—f.b.m.	38,181,881	7,471,163	6,944,719	138,704
Railway ties	23,029	166,151	77,068	500
Piling—lineal feet	.....	560	20,355	752
Mine timber—lineal feet	34,952	102,512	158,699	.....
Lath	3,880,405	82,200	.....	.....
Telegraph and telephone poles	.....	.....	8,760	.....
Building logs—lineal feet	.....	.....	705,839	12,656
Fence rails	.....	.....	1,004,129	1,000
Roof poles	.....	.....	242,832	2,003
Fence posts	.....	.....	303,207	4,380
Cordwood—cords	.....	.....	6,213	808
Shingle bolts	.....	.....	10,000	.....

Number of Inspection Reports submitted by Timber Inspectors	1,476
Number of Timber Seizures made	145

ANALYSIS OF WOOD SALES ON FOREST RESERVES—FISCAL YEAR 1932–33

Fuelwood (cords)	4,267
Fence–posts, rails, and piling (pieces)	25,049
Fence–posts, rails and piling (lin. ft.)	4,778
Saw timber (F.B.M.)	375,568
Mining timber (lin. ft.)	967,220
Lagging (cords)	147
Building logs (pieces)	1,586
Building logs (lin. ft.)	216,825
Telephone and telegraph poles	2,825
Fence droppers (pieces)	4,723
Christmas trees	24

TIMBER CUT FROM TIMBER SALES—PERIOD APRIL 1st, 1932, TO MARCH 31st, 1933

(There were 11 active, 13 inactive and 2 new sales during this period.)

	Saw–logs Fire–killed F.B.M.	Saw–logs Green F.B.M.	Mining Timber Green Lin. ft.	Mining Timber Fire–killed Lin. ft.	Lagging Lin. ft.	Green Tops Pcs.	Mine Ties	Value
Brazeau–Athabaska	.....	501,846	241,848	137,324	.....	.....	672	$2,861.70
Clearwater	.....	74,797	.....	216,574	59,273	.....	.....	1,451.01
Crowsnest–Bow River	5,752	1,790,384	2,400	780	.....	3,770	330	4,686.25
TOTALS	5,752	2,367,027	244,248	354,678	59,273	3,770	1,002	$8,998.96

Nursery.

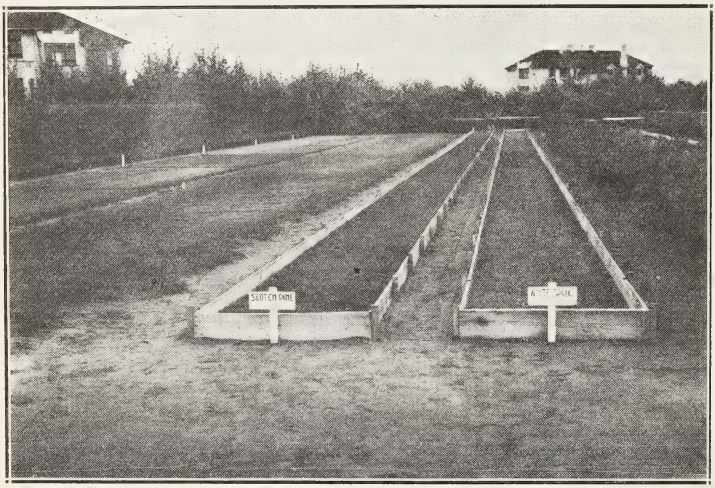
For the purpose of supplementing the work of the federal Department of Agriculture through their nurseries at Indian Head and Sutherland, Saskatchewan, and therefore speeding up the work of prairie tree planting by farmers and also for the purpose of producing tree stock for reforestation projects, a forestry nursery has been established at the Oliver Mental Institute, northeast of the city of Edmonton.

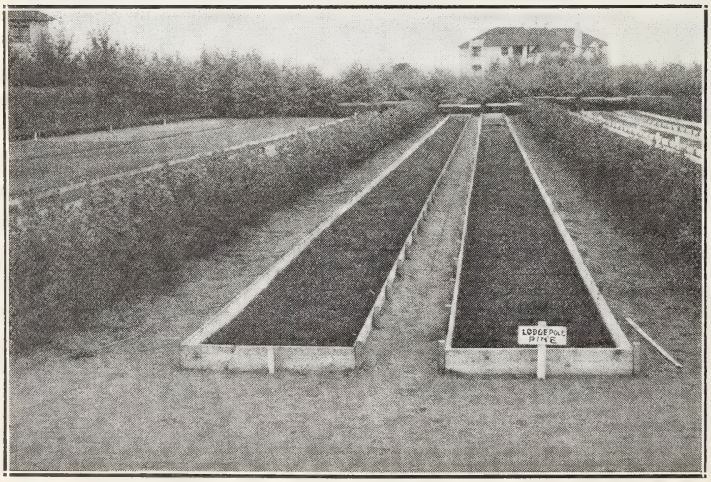
The value of systematic planting of certain shrubs and trees for shelter belts, shelter bluffs and beautification, for the purpose of conserving moisture, reduction of soil drifting and for the beautifying of homes, has been conceded by practically everyone. It is believed that adequate planting of suitable tree stock is the solution of some of the problems faced by the prairie farmer and the partial solution of others. It is hoped, therefore, that by supplementing the supply available from the federal nurseries that greater headway will be made in obtaining the desired results.

There are, in the Province, certain tree species which are only valuable, beyond shelter belt purposes, for fuelwood, and it is intended that a number of more valuable species should be introduced and experiments carried on at the nursery with a view to proving or disproving the adaptability of such species to the conditions found in this Province. Amongst the different varieties of trees which have been planted at the nursery during the past year for experimental purposes are the following: Douglas fir, western cedar, Siberian larch, elm, ash, burr oak, horse chestnut and a hardy variety of plums.

Siberian Larch grown at the Oliver Forest Nursery

It is not the intention of the Forest Service to make a distribution of seedlings of these exotic species at the present time. Experiments will tell whether they are suitable for growing in this Province. In the meantime the distribution of stock will be confined to caragana and native coniferous species such as lodgepole pine, jack pine and white spruce. There is, however, one exotic type which has been grown successfully in this country, and that is Scotch pine, and it is the intention of the Service to use this for distribution purposes. Owing to the very poor seed crop of native species last year, a quantity of scotch pine seed has been purchased





Seedlings in seed beds at the Oliver Forest Nursery

for seeding in beds this spring for future distribution. This type in its native element in Europe and Asia is one of the principal producers of lumber, and is a very fine looking tree.

There are, in parts of the Province, areas of land suitable only for the growth of trees and which at the present time are more or less barren of any growth. There are also important watershed areas on which tree growth is not at all satisfactory, due principally to a succession of forest fires. When funds are procurable for the extension of the nursery project on a much larger scale, it is intended that stock shall be available for the planting of such areas. Certain parts of the central eastern part of the Province, which have in times past supported a tree growth, are now devoid of such growth, and it is the intention of the Service to experiment with certain drought-resisting species in order that one may be found which will grow satisfactorily on these areas. Planting of this nature, it is hoped, will tend to conserve moisture in these districts, and will at the same time create a supply of wood for farmers in areas where this commodity has become scarce.

The establishment of a forest nursery and the production of tree stock on a sufficiently large scale to be of value requires a considerable expenditure and a good deal of time. The preparation of seed and transplant beds, the collection and extraction of seed, the seeding, transplanting, care, and development of the plant to a stage of growth suitable for distribution and final planting takes from three to five or six years.

At the Oliver Mental Institute preparation for a successful forest nursery has been in hand since the fall of 1931. At that time a large amount of spruce and pine stock, developed to the transplanting stage, was available at the Cooking Lake forest reserve, east of Edmonton. This stock was moved to the nursery in the spring of 1932. Approximately 4,550 four year old jack pine, 3,900 four year old lodgepole pine, 2,700 four year old larch and 59,620 four year old white spruce were planted in rows sixteen inches apart and spaced every three inches. The balance of the stock comprising about 175,000 two year old white spruce was planted very close together in rows one foot apart for future transplanting. About half of this stock will be available for distribution in the spring of 1934 while a small quantity will be available for distribution this spring.

In addition to the seedlings already available from the Cooking Lake reserve, two large seed beds 165′x4′ were prepared in the spring of 1932 and seeded to lodgepole pine, jack pine and spruce. Added to these, a smaller bed was established in which species, exotic to the Province, were planted. It is conservatively estimated that this operation is represented by the growth of approximately 500,000 lodgepole pine, 6,000 jack pine and about 5,000 white spruce seedlings together with an undetermined small number of each of the exotic species planted. This stock is to be moved to transplant beds during the fall of 1933, in which they will remain from two to three years before they will be available for distribution.

The provincial Department of Agriculture was responsible for the initial work in connection with the production of a large quantity of caragana plants. When it was anticipated in 1931 that the Federal Government nurseries would be done away with, a

Spruce transplants at the Oliver Forest Nursery

considerable amount of caragana seed was collected with a view to supplying large quantities of seedlings and seed to the farmers to make up for the loss of supplies of other species until such time as the provincial governments could establish their own nurseries. Under the direction of the Forest Service, machinery for the distribution of caragana, planted at the Oliver Mental Institute, was set up and applications were dealt with. The number received from individuals, institutions and schools amounted to 1,010 of which it was necessary to refuse 111, the reasons in most cases being the late arrival of the applicants' requests. The approval of these applications represents the packing and shipping of approximately 700,000 caragana plants, 8,000 white spruce seedlings and 400 lodgepole pine seedlings, which was all the stock available for distribution for the spring of 1933.

Grazing

The administration of grazing resources within the forest reserves is a responsibility of the Forest Service. The work in connection with this is almost wholly centered within the two southern divisions of the Rocky Mountains forest reserve—the Crowsnest and Bow River, and in the Cypress Hills forest reserve in the south-eastern part of the Province.

The areas mentioned furnish a large amount of summer grazing for the herds of stockmen in the vicinity, and as a matter of fact the great majority using forest range is largely dependent on this range for summer pasture. From the viewpoint of the Forest Service the utilization of this grazing resource is of twofold importance, firstly, by the elimination of a hazardous condition through the removal of range grasses and to a limited extent of other annual plants which if left to dry and cure would be a fire trap, and, secondly, the regulated use of this annually replaced resource with a view to sustained revenue and for the benefit of the stock raising industry.

Under these circumstances it is important that the grazing of livestock be regulated in the interests of all concerned. Distribution of stock should provide for uniform utilization of range fodder to the greatest extent possible in consideration of the number of stock being grazed. Overgrazing either through permitting more stock on the range than can be safely grazed or through the poor distribution of stock must be avoided.

The grazing situation during the year was very satisfactory. A considerable area was used to capacity and south of the Crowsnest Pass a local demand for sheep range developed. The territory north of the Bow River valley will support a large number of livestock, but most of the range is at present partially or wholly unutilized. Under prevailing conditions in the stock-raising industry there is no incentive to use this range.

GRAZING REPORT—GRAZING YEAR 1932

Forest	No. of permits	No. of cattle	No. of horses	No. of sheep
Cypress Hills	72	2,510	412	.....
Crowsnest–Bow River	302	16,759	2,073	7,465
Clearwater	78	41	286	.....
Brazeau–Athabaska	113	103	549	.....
Cooking Lake	41	673	57	.....
TOTALS	606	20,086	3,377	7,465

Revenue From Forest Reserves

Revenue for the year ending March 31, 1933 shows a decrease of $10,766.53 from the year previous. This is partly accounted for by the fact that the Lesser Slave provincial forest was discontinued, the revenue formerly derived from this source now being credited to the Edmonton and Peace River land agencies.

There was a decrease of $3,343.10 shown in timber permits and seizures.

Collection of timber sale dues showed a decrease of $4,959.38 over the previous year. Approximately half of this decrease is accounted for by the fact that for part of the year 1932-33 revenue derived from timber sales on the former Lesser Slave forest was not credited to forest reserve revenue. It might also be pointed out that some timber sales which were active and revenue producing during 1931-32 were not operated during 1932-33.

Hay permits, never a large source of revenue on provincial forests, show a decline of $56.25.

Fishing permits also show a decrease of $254.75.

Miscellaneous use permits show a small decline.

Sundry revenue shows a decline of $1,901.55, which is accounted for by the fact that the collection of house rent was discontinued on provincial forests with four exceptions.

Grazing revenue shows an increase of $1,704.11 and surface rentals show an increase of $158.07.

The following is a summary of revenue received from all sources on provincial forests:

Timber permits	$ 6,096.73
Timber seizures	23.80
Timber sales	9,748.78
Grazing permits	12,098.99
Hay permits	208.00
Fishing permits	1,087.50
Surface rentals	1,971.28
Miscellaneous use permits	805.90
Sundry revenue	721.35
TOTAL	$32,762.33

Recreation

Every year an increased use of forested territory for recreation is noted, new or improved roads providing safer and surer travel and the publicity given to certain popular districts has been followed by a growing influx of campers, picnickers, fishermen and hunters.

In the southern part of the Province where reasonably good roads and trails exist between nearby villages, towns and cities to the forest reserves and where lands are occupied up to the forest reserve boundary the use is one of long standing. The privilege of using such areas for recreational purposes is an important one to many people of this Province. Indeed the people of the Province are fortunate in that recreational areas of great appeal exist so convenient to them.

The northern divisions of the Rocky Mountains forest reserve are not yet accessible to the motoring public. They are, however, important recreational areas for the residents of the coal-mining towns situate within their boundaries and are very popular with the big game hunter.

Recreational use of forested territory carried with it a distinct danger to the forest. This danger can be to a large extent directly controlled, and it can be further minimized by arousing in the public a thorough understanding of the importance of forests. In view of the benefits derived from such use it should receive encouragement particularly in those areas where a satisfactory degree of control is possible.

Publicity

Exhibits of general interest were placed in the Stampede ranger station cabin on the occasion of the Calgary exhibition and likewise at the Forest Service cabin at the time of the Edmonton exhibition. Good attendance is again reported.

A small amount of publicity dealing particularly with fire danger appeared from time to time in the daily and weekly papers. Such articles meet the immediate need of an emergent situation, but if the best results are to be obtained they should be kept up frequently and insistently through the fire season.

A large supply of publicity material in the form of tree games was secured from the Federal Forest Service. These were given a wide distribution particularly in settlements within or adjacent to forested territory.

Unemployment Relief

The operation of four camps, one within the Crowsnest-Bow River forest and three within the Clearwater forest, provided considerable extra work for the staff of these two districts. The work progressed in a very satisfactory way and with comparatively little difficulty from the men.

The operations undertaken were important. When completed they will have an influential bearing on the protection and administration of certain forested territory, and will no doubt be greatly appreciated by persons desiring to travel by motor car.

The reconstruction of the Red Deer road will provide for safe travel into the upper Red Deer valley, while the construction of the Haven road west of Nordegg will provide similar facilities in the upper valley of the North Saskatchewan. The latter project opens to the motor tourist one of the finest mountain valleys in the Province, and when eventually linked up with the Jasper-Lake Louise highway will undoubtedly be a popular section of the scenic highways of the Province. In addition it will be extremely useful in connection with forest protection and administration.

The foregoing report deals in a general way with the various activities of the Forest Service during the fiscal year under review. Particular emphasis has been given to organization and to forest protection. The former has been discussed in detail in order that a reasonably clear understanding of the set-up of this Service may be had. Forest protection being the most important single effort of the Service upon which the timber industry depends for future supplies of raw material, it is essential that the year's operations be reviewed in this light.

The reports of the Chief Timber Inspector and of the forest officers in charge of forest reserves and divisions of the Rocky

Mountains forest reserve follow and provide information in detail with respect to the operations for which each individual is responsible.

In conclusion, it should be pointed out that the success attending the efforts of this Service as a whole may to a very considerable extent be attributed to the fine degree of harmony and loyalty which existed between various officers of the Service and the co-operation which has been extended from other divisions of the Department and sections of the Government.

REPORT OF THE CHIEF TIMBER INSPECTOR, F. W. NEILSON

To properly cover the activities of the timber inspection service of this branch during the fiscal year ending March 31st, 1933, some mention must be made of the organization in the preceding year in comparison with the system under which we are now working.

Previous to the last fiscal year the Province was divided into six inspection districts with five inspectors working under the Crown Timber Agent, Edmonton, one under the Crown Timber Agent, Calgary, and a chief timber inspector working over the whole Province with the various inspectors in co-operation with the crown timber agents, but directly under the supervision of the Director of Lands.

During the same period, in the areas covered by the Edmonton, Grande Prairie and Peace River land districts, there were employed under the Director of Forestry four sub-chief fire rangers, each of whom was in charge of the seasonal rangers in his division. There was also a supervisor in charge of both fire protection and inspection service in the area then covered by the Lesser Slave forest reserve, under whom, besides the seasonal rangers, were two permanent rangers with the same status in salary as the four sub-chief rangers mentioned. A clerk was also employed on the reserve in a permanent capacity, making in all a total permanent staff of fourteen to cover timber inspections and fire protection in the northern part of the Province. The inspector working under the Crown Timber Agent, Calgary, brought this total to fifteen.

It will readily be seen that this staff, all having some part in matters pertaining to the forests of the Province, were under divided authority and not at all times in harmony.

At the beginning of the fiscal year ending March 31st, 1933, a new system was put into effect by which all timber inspection work was brought under the Director of Forestry. The Lesser Slave forest reserve was abolished, and that portion of the Province north of the Calgary district divided into eight timber inspection districts with an inspector in charge of each. The districts are divided into fire protection divisions, in each of which there is a seasonal fire ranger who is responsible to the inspector of that district.

In addition to the staff of inspectors, the appointment has been made of a timber investigator whose particular duties are to make final cruises in connection with the sale of license timber berths and to investigate any large areas of timber on provincial lands in

order that the Department may gradually acquire a knowledge of the timber resources of the Province.

In the area south of the Edmonton land district all timber inspection work is now being carried on by the supervisors of the Clearwater and Crowsnest-Bow River forest reserves, and the results of the new system have been not only the co-ordination of the work, but a reduction of staff from fifteen to ten.

The work of the inspectors is scattered over large areas, and each has been provided with a Ford coupe for rapid transportation, although in the more inaccessible parts transportation is necessarily by way of team, saddle horse, boat or raft and on foot.

The duties of the inspectors under the heading of "Timber Inspections" consist of checking all logging or other operations on the various berths and ascertaining whether the sale of timber from unpatented homesteads is being carried out under authority of permits. Patented lands in timbered areas are also checked to ascertain if timber reported as having been sold from these lands has actually been cut thereon and not on nearby provincial lands. This applies principally to railway ties. Sawmills manufacturing material from berths are inspected, the stock on hand scaled and the sales records checked periodically. Mills doing custom sawing are also checked to see that proper records are being kept and that permits or other necessary documents are on hand authorizing the manufacture of custom material. Monthly statements are submitted showing every sawmill visited during the month whether in operation or not and, in co-operation with the Fisheries division, a special report is submitted regarding any sawmills visited, which may be located on a lake or stream showing whether or not sawdust is being allowed to fall into the water.

All lands which have been applied for as permits berths are inspected and the timber thereon estimated, and in addition to collections in connection with permits, together with the picking up and proper completion of outstanding permits and other documents, the inspector as he travels through his district is always on the lookout for trespass cutting of timber. In short the inspector is the eyes of the Department, and his efficiency is gauged not only by his knowledge of timber, but by his ability to administer the regulations impartially and gain the co-operation of the public generally.

Under the heading of fire protection the inspector is responsible for the work of the fire rangers in his district. The very fact that he is travelling through the various parts of it and is in communication with the different operators serves to keep him closely in touch with the work being performed by the rangers. All fire-fighting equipment is also in his charge, and it is part of his duties to see that it goes out to the rangers in good order in the spring and that it is returned or properly accounted for at the close of the fire season.

Before being submitted to head office, the monthly diary of each of the rangers in his district as well as all time sheets and other expense accounts in connection with fire-fighting and fire reports from the rangers are checked by the inspector.

Inspectors are authorized by the Department of Agriculture to act as game guardians which duties, added to those covered by their regular occupation, serve in taking up their time completely in each of the twelve months of the year.

Certain difficulties have, of course, been experienced in the adjustment necessary to carry on work which is now so diversified, but it is felt that at the end of a year's trial the new system has worked satisfactorily, and that loyal and efficient service has been given by the inspectors.

The following is a list of the inspectors, their districts and headquarters:

Inspector.	District.	Headquarters.
R. S. Wyllie	Edmonton	Edmonton
D. A. McKay	Bonnyville	Warspite
J. R. H. Hall	Edson	Edson
C. Ranche	Athabaska	Westlock
H. D. McDonald	McMurray	McMurray
C. H. MacDonald	Slave Lake	Slave Lake
D. Minchin	Peace River	Peace River
D. Buck	Grande Prairie	Grande Prairie

E. S. Huestis, Timber Investigator, Edmonton.

CYPRESS HILLS FOREST

REPORT OF THE FOREST RANGER, G. R. AMBROSE, THELMA, ALBERTA

The Cypress Hills forest, situated forty miles south and east of Medicine Hat, comprises 80.69 square miles of land. It is on a timbered plateau, and as the surrounding country is treeless prairie, the forest is of very great value to farmers and ranchers who are allowed to remove by permit timber for fencing, poles, fuel, etc. The cutting operations, as at present carried on, are very carefully supervised and are largely in the nature of thinning and clearing throughout the area, all timber to be removed being marked by a forest officer. A fireguard is being cut through the Battle Creek valley by timber permittees, who utilize all the wood they cut. A summer resort is in operation in the forest, building lots near Elkwater being leased to persons who wish to build cottages. Improvements constructed or in process of construction at the Elkwater Lake summer resort received the attention of the ranger as other work permitted.

An assistant was employed for short periods throughout the summer to help on the maintenance of various improvements and the marking of timber to be cut by permittees.

FIELD STAFF ACTIVITIES—CYPRESS HILLS FOREST

Classification.	Man-days worked.
Improvements: New construction	51.5
Maintenance	74
Boundary surveys	18
Timber	65
Grazing	20.5
Fish	1.5
Game	4.5
Uses of land	10
Miscellaneous executive duties	148.5
Care of equipment	3.5
Fuel supply	9.5
Haying	3
Travel	2
Days lost on account of weather	3
TOTAL	414.5

Forest Protection

The season was very favourable and no great fire hazard was experienced on this reserve. The reserve is happily situated in that it is surrounded by ranchers who use the forest range almost exclusively and give every kind of co-operation possible. The timber permittees also appreciate the fact that a fire on this reserve would affect them adversely.

Fire signs are posted along the trails and highways throughout the forest, and a system of fire-guard roads is being maintained on the open bench land. Fire lines are being cut through the bush at strategical points. The mileage covered is as follows:

Fire–guard roads	23 miles
Ordinary fire–guards	4.5 miles

Two portable fire engines, 2,500 feet of hose and a ten-man fire-fighting outfit are maintained in good condition.

Improvements

The only new construction attempted in this forest was a short road at Elkwater lake to give access to a business portion of the summer resort. A survey of the north boundary of the reserve was carried out to facilitate the administration of this portion of the area. Buildings, telephone lines and other projects were maintained in a satisfactory condition.

IMPROVEMENT STATEMENT

New Construction:		
Boundary survey	3.5	miles
Road	550	feet
Maintenance:		
Ranger station houses	1	
Other buildings	2	
Telephone lines	12	miles
Fire–guard roads	23	miles
Fencing	5	miles
Water supply systems	2	
Dams	1	
Grounds	1	

Forest Administration

Silviculture.

Applications for timber permits were materially reduced this season. This was caused partly from the financial stringency and partly from the effects of the wet season. Roads were in bad condition and early snows prevented permittees from coming to the bush in the fall.

Four bushels of lodgepole pine cones were collected and shipped to Edmonton for the tree nursery at Oliver.

Grazing.

An increase in grazing was noted this season. Owing to low prices cattlemen and farmers were holding their stock for a more favourable market and were looking to the forest range to supply the necessary extra pasture.

The three stock associations were working normally keeping inter-divisional fences in repair and the range salted. Trespass of stock was reduced to a minimum. Loss on the reserve was not heavy considering the number of stock involved. Three head of cattle were killed by lightning, two died from larkspur poison, and

two perished in the first rain storm after being turned on the forest range.

The following table summarizes grazing carried out during this period:

NUMBER OF PERMITS AND TOTAL STOCK GRAZED		
Grazing permits, 72—covering:	Cattle	2,510
	Horses	412

Uses.

The special use permits in force were for enclosed grazing areas, summer resort lots, stacking and feeding areas, and watering areas; also the surface rights for a coal-mining operation.

Recreation.

The forest reserve is being used to a greater extent each year for recreational purposes. Five boy scout camps were located at Elkwater lake this season and week-end campers were numerous. The co-operation received from the public was all that could be desired.

CROWSNEST-BOW RIVER FOREST

REPORT OF THE FOREST SUPERINTENDENT, A. G. SMITH, CALGARY

The forest dealt with in this report is made up of two adjoining sections, the Crownsnest division and the Bow River division, which were amalgamated in the spring of 1932 to form the Crowsnest-Bow River forest, part of the Rocky Mountains Forest Reserve. It is made up of mountain and foothill country on the east slope of the Rocky Mountains, extending in a long and comparatively narrow strip from township 2, ranges 1, 2, and 3, to township 35, range 8. The western boundary extends from Waterton Lakes National Park, in township 2, north along the Alberta-British Columbia interprovincial boundary line to township 20. From this point north, the Banff National Park abuts the forest and the eastern boundary of the park is the western boundary of the forest. This common boundary line extends north to township 32. The boundary between the Bow River forest and the Clearwater forest runs northeast to township 35, range 8, the most northerly point of the Crowsnest-Bow River forest.

This forest is from 12 to 36 miles wide, the eastern boundary being planned to include within the forest those foothill lands which are more valuable for timber and watershed protection than for agricultural purposes.

The Crowsnest division has an area of 1,304 square miles, and comprises the drainage basins of the Oldman river and its tributaries, including Willow creek, Livingstone, Crowsnest and Castle rivers and small tributaries of the Waterton river.

The Bow River division contains approximately 3,499 square miles, and comprises most of the drainage basins of tributaries of the Red Deer and Bow rivers, including the Ghost, Kananaskis, Elbow, Sheep, and Highwood rivers.

The most important activity during the year under review was work on improvements coupled with fire protection. All the field staff were required to spend a considerable time in the prevention

and detection of forest fires. A great deal of work was done in the maintenance of improvements such as roads, trails, buildings, telephone lines, and fences. The administration of the various revenue-producing branches of the work was well attended to in the supervision of grazing, timber, and use privileges. Grazing, especially, required a great deal of attention in the past year. The operation of an unemployment relief camp was a heavy additional burden to this office and to some members of the field staff.

The field staff of the Crowsnest-Bow River forest consists of thirteen district forest rangers and ten assistant forest rangers. In addition to these, eleven men who serve as patrolmen, lookoutmen and telephone operator are employed for protective work during the fire season. Only two rangers are employed permanently and two others are employed for eight months at full pay and four months at half-pay. None of the other members of the field staff work on the forest more than eight months in the year. The district forest rangers attended to the more important administrative and protective duties and directed the activities of the assistant rangers and patrolmen.

FIELD STAFF ACTIVITIES—'CROWSNEST–BOW RIVER FOREST

Classification	Man–days worked
Improvements: New construction	146
Maintenance	1,348
Fire–fighting	72
Fire patrol (including lookout work)	1,362
Timber	438.5
Grazing	207.5
Fish	71
Nurseries	14
Game	227
Uses of land	17
Miscellaneous executive duties	722
Care of equipment	340.5
Fuel supply	112.5
Haying	95
Travel	489
Days lost on account of weather	16
TOTAL	5,678

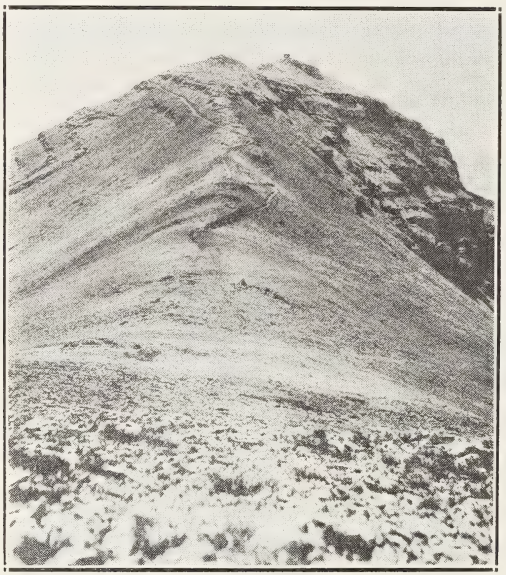
Forest Protection

The weather conditions during the early part of the fire season were not favourable for the starting of forest fires. From about the 15th of July to the middle of August weather conditions were such that this period was moderately dangerous, and most of our fires occurred then. Between the middle of August and the 10th day of September, fairly heavy rains fell at frequent intervals over the entire forest. In the fall of 1932, from approximately September 11th to October 5th, fire conditions were not particularly unfavourable for protection, although there were frequent intervals of fairly dry weather accompanied by heavy winds. Some few snow flurries held the fire hazard in check and no difficulty with fire was experienced. At the end of this time, heavy winter snows fell and reduced the danger to a minimum.

The principal human agencies causing fires in the forest were travellers, oil well operators and settlers. A fairly close control of the public is kept by means of travel permits and register books. No person is allowed to travel in the forest without a permit, which is issued free. The permits are obtained from forest officers and registers are located at points most convenient to travellers. As a

general rule, the public has been found most willing to co-operate in the matter of fire protection. Excellent co-operation has been received from the various mining companies and other interests operating on or near the Crowsnest-Bow River forest.

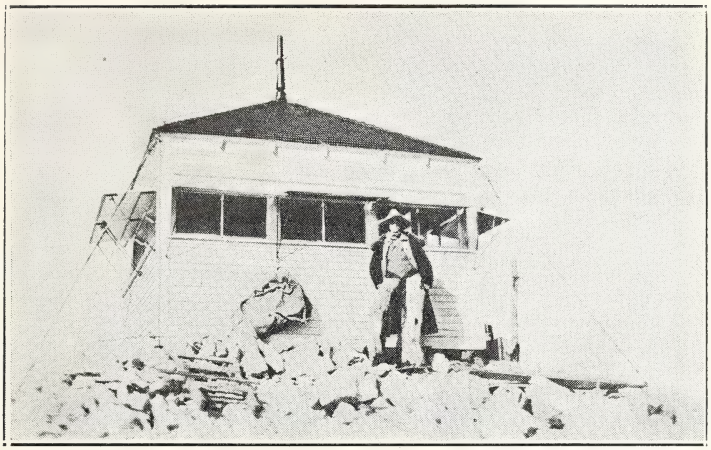
Owing to the lack of funds, very little publicity work could be undertaken during the period under review. At various times articles appeared in the press warning the public about forest fires. The publicity car of the British Columbia Forestry Association toured southern Alberta, the men in charge showing pictures of wild life and giving lectures on forestry. A large number of tree games were distributed to children living near the forest, as a means of interesting them in forest protection.



Moose Mountain Lookout Station, showing the lookout cabin on the summit (7,991 ft.) and the trail leading to the summit.

For the detection of fire, the system of lookout towers was relied upon to a large extent, supplemented by patrol in the more popular camping districts. The lookout system of eight stations situated on sites commanding the best views of the forest functioned satisfactorily. All lookout stations are linked with the ground force by telephone and trail. This system of lookout towers and telephones has been very effective in the past in obtaining prompt action on fires started by lightning, which is one of the chief causes of fire in this forest.

Eleven fires were dealt with in the calendar year 1932. Of these, lightning caused 5, smokers 1, campers 2, industrial operations 1, and 2 were incendiary. The total suppression costs were $3,142.87, which includes $340.45 for ranger labour. The value of all the timber destroyed was $4,879.98. The fire at Bragg Creek caused by



Moose Mountain Lookout Cabin. Note guy cables, lightning conductors and protective shelters for windows.

Looking northwest from the Blue Hill Lookout.

campers was by far the largest. Timber to the value of $3,750.00 was burned and $1,808.07 represented costs in extinguishing it. The McGillivray Creek and International fires, of incendiary origin, cost together $1,177.05 to extinguish, burning timber worth $1,118.80. Of the eleven fires which occurred during the season, it was necessary to employ extra help for nine, and only two could be handled by the field staff without assistance. Due to the unemployment situation, no difficulty was experienced in obtaining crews. Men for the Bragg Creek fire were obtained from Bragg Creek and Calgary, and for the International fire men were recruited from Coleman. For some of the smaller fires, nearby campers and travellers were pressed into service. It is worthy of note that on nearly every fire two or more forest officers were co-operating on fire suppression action.

Improvements

During the past year the improvements on the Crowsnest-Bow River forest have been maintained in a satisfactory condition by ranger labour. No new construction projects were undertaken or completed in the past year, other than those on which work was done by an unemployment relief crew.

The following is a list of those improvements on which actual maintenance work was done by the forest officers:

Ranger station houses	6
Stables	4
Corrals	4
Ranger station grounds	9
Telephone lines	370.5 miles
Roads	145.5 "
Trails, primary	452.5 "
Trails, secondary	155 "
Trails, auxiliary	77 "
Fences	41.36 "

Forest Administration

Silviculture.

Due to present economic conditions and the low prices prevailing in the lumber market, the past year saw little activity in the timber operations on the Crowsnest-Bow River forest. Slightly more timber was cut in 1932-33 than in 1931-32. Operations in the woods were, for the most part, conducted in a satisfactory manner. There was practically no decrease in the amount of timber sold by permit. Numbers of settlers took out permits to obtain timber for fuel-wood, fencing and similar purposes. A total of 473 permits was issued, bringing a revenue of $4,130.22.

The tree seed crop on this forest for 1932 was very poor, and very little seed was obtained. A total of eight bushels of spruce, Douglas fir, and pine cones were shipped to Edmonton for the Oliver nursery.

No seeding, planting, nursery work or forest reconnaissance was done on this forest in the past year.

Grazing.

Forage conditions were excellent over the entire forest during the year under review. Heavy rains in May and June of 1932 induced an abundant and rapid growth on practically all areas. The stock entering the forest at the first of the season were in fair condition, with the possible exception of some stock which was put in the Big Horn district. There was a slight increase in the use of the forest range for the 1932 season over the season for 1931. The market for cattle was unfavourable, prices being lower than for some years.

The entire Crowsnest section and the Sentinel and North Sheep grazing divisions on the Bow River forest were used to capacity. The range management by individuals and associations, grazing stock in the forest, was carried out in a satisfactory manner, the distribution of stock and salting being done properly in all divisions. No cases of wilful trespass were reported.

On the Bow River division approximately twenty head of stock died of Ergot poisoning, and two head of cattle were reported to have been killed by mountain lions in the Big Horn district. A

few sheep were killed by bears and other predatory animals on the South End grazing division of the Crowsnest area.

NUMBER OF PERMITS AND TOTAL STOCK GRAZED

Grazing permits—covering:	Cattle	16,759
	Horses	2,073
	Sheep	7,465

Uses.

Uses of land embrace all surface rights privileges granted in the form of lease or permit, usually in conjunction with oil drilling, mining, grazing operations, trapping or recreational uses. Very few new uses were authorized during the 1932-33 fiscal year. Oil drilling projects were comparatively inactive. Use privileges in connection with grazing, such as corrals, herders' cabins, fences, holding pastures, etc., established for the handling of stock, were again utilized as in the past.

Recreation.

The Crowsnest-Bow River forest was used considerably in 1932-33 by sportsmen for hunting and fishing. A large number of campers and travellers was registered. The popularity of the forest with this class of people is increasing yearly, tourists especially becoming more numerous. Co-operation of these visitors in fire protection and general conservation has been very satisfactory.

All feasible assistance was given the travelling public. In various ways the field staff and forest headquarters have been able to provide assistance, especially in giving information to tourists. Contacts of this nature are relied on to build up good-will between the public and the Forest Service. The past year has seen excellent progress in this work.

Unemployment Relief.

Unemployment Relief Camp No. 14, located in the Red Deer district of the Bow River division, was operated under the supervision of this office. Following is a summary of the work done by this camp:

ROAD WORK (Red Deer road, leading to the Red Deer ranger station):

Cleared and stumped	9.25	miles
Graded	14	"
Culverts built	26	
Rock removed	8,750	cu. yds.
Dirt removed	84,185	"
Gravel removed	310	"

BRIDGES:

1 with one 20-foot span, 6 feet high.
1 with three spans, 60 feet long, 20 feet high.

New Bridge over Bull Creek on the Red Deer Road

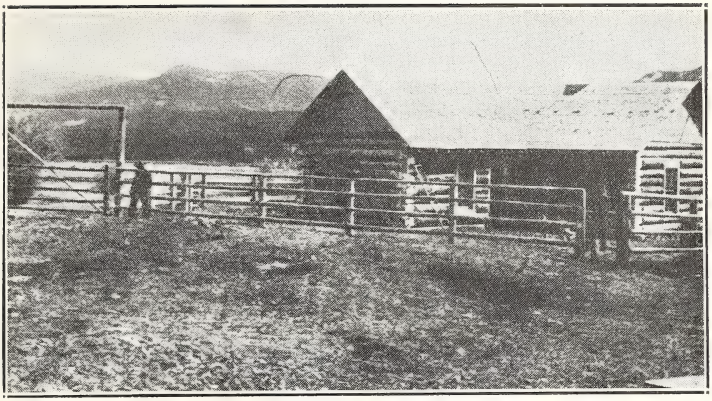
Rock cut on the Red Deer Road.

BUILDINGS (erected on the site of the Red Deer ranger district headquarters):

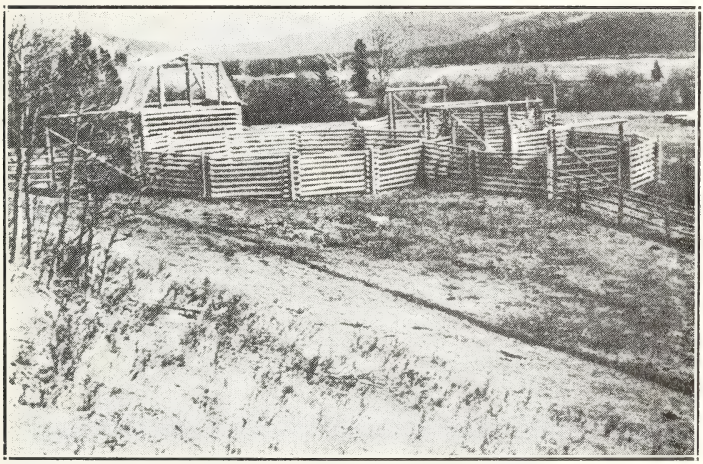
Ranger station house	50' x 32'8"
With lean-to kitchen	15' x 12'10"
Bunk house	18' x 16'
Stable	30' x 20'
Warehouse	28' x 26'

All buildings were made of logs on a cement foundation. Roofs are of shingle over framework. None of them are yet complete.

CORRALS: A complete set of corrals consisting of three enclosures, with 200 feet of fencing, was also built at the Red Deer district headquarters.



New Red Deer Ranger Station House.



New Corrals and partially finished stable at the Red Deer Ranger Station.

CLEARWATER FOREST

REPORT OF THE FOREST SUPERINTENDENT, J. P. ALEXANDER, ROCKY MOUNTAIN HOUSE, ALTA.

The operations of the provincial Forest Service in the Clearwater forest reserve district consist of the administration and protection of the reserve, fire protection of provincial lands in fire ranging districts Nos. 1 and 2, timber inspection of provincial lands lying adjacent to the east boundary of the reserve, and supervisory administration of the work of such unemployment relief camps as are operating within the forest reserve.

The Clearwater forest reserve comprises approximately 4,000 square miles of the Rocky Mountains Forest Reserve, lying between the Red Deer river-Clearwater river summit on the south, and the Brazeau river on the north. The west boundary adjoins the Banff and Jasper parks and the east boundary varies from range 8 at the south end to range 12 at the Brazeau river in the north.

Fire ranging districts Nos. 1 and 2 comprise approximately 1,400 square miles along the east boundary of the forest reserve. The unsettled portion of this area supports practically all of the timber growth of this district outside of the reserve.

The Rocky Mountain House Timber Inspectorate includes all lands between townships 34 and 42 situated to the west of the Canadian Pacific Railway Company's Calgary-Edmonton line.

The topography of the above areas varies from the purely mountainous regions of the hinterland of the forest reserve, through the rolling country of the outer reserve lands and the fire-ranging districts, to the more gently rolling prairie lands adjacent to the railway line or east boundary.

Owing to an exceptionally wet summer season during the year the staff was not greatly exercised with fire prevention, apart from the issuance and control of fire permit burning. It was therefore possible to devote considerable time to the more pressing activities of improvement maintenance and relief camp work which was diligently carried out throughout the season. It is regretted that the press of more urgent administrative work prevented as much timber inspection as might otherwise have been undertaken. However, detailed attention was given to this work in the time that was available, and it is thought that some improvement in the conditions of timber operations throughout the area was obtained.

The permanent staff consists of the forest superintendent, forest clerk and one forest ranger. This personnel, during the winter months, would ordinarily be stationed at Rocky Mountain House headquarters, outlying districts being periodically visited, as required. During the past year the unemployment relief camps on the reserve, west of Nordegg, required constant attention with Nordegg as a railhead, so that it was necessary for a ranger to be kept permanently at that point.

The permanent staff was supplemented during the six months season, May to October, by the addition of three forest rangers and eight assistant rangers, located as follows:

Clearwater district—1 forest ranger and 1 assistant ranger.
Ram district—2 assistant rangers.
Brazeau (east) district—1 forest ranger and 1 assistant ranger.
Brazeau (west) district—1 forest ranger and 2 assistant rangers.
Fire-ranging district No. 1—1 assistant ranger.
Fire-ranging district No. 2—1 assistant ranger.
Headquarters—1 assistant ranger.

The personnel of the districts within the reserve, the four first-named above, was concerned for the greater part of the time with fire prevention and improvement work, new construction and maintenance, and in addition to these duties a percentage of their time is necessarily devoted to general administration within their districts.

The personnel at headquarters and in the fire ranging districts was not required to devote time to improvements, the duties being largely fire and fire permit control, timber patrol and inspection. In addition to these duties, the headquarters' ranger was available for any necessary work within the entire district which might require attention.

It is to be regretted that the press of work in connection with the relief camps prevented the normal distribution of the permanent staff during the winter season as a considerable amount of outside timber inspection and patrol work which would ordinarily have been carried on was unavoidably left undone and at a season when the timber activities were at their maximum. Fortunately, such checking as has been done lately, has shown that the winter's timber operations were much better than anticipated.

FIELD STAFF ACTIVITIES—CLEARWATER FOREST

Classification		Man-days worked
Improvements:	New construction	71
	Maintenance	693.5
Fire-fighting		5
Fire patrol (including lookout services)		649
Timber		79
Grazing		281
Fish		6
Game		14
Uses of land		5
Miscellaneous executive duties		208
Care of equipment		159
Fuel supply		18
Haying		38
Travel		169
Unemployment relief		196
Days lost on account of weather		6
TOTAL		2,597.5

Forest Protection

Weather conditions during the fire season of this year were such that there were no periods of extreme fire danger. There was a short period of some hazard during the early days of May, but this was soon overcome by heavy rains in the latter part of the month and the remainder of the season may be said to have been practically free of any appreciable hazard, although there was again a short spell of average danger in the early fall which was definitely relieved by early snowstorms in October. This snow remained on the ground throughout the winter.

By far the greater number of persons using this reserve for recreation, camping, fishing and hunting were either local residents

or tourist parties accompanied by licensed guides. For this reason it is no doubt safe to state that the fire danger from human agencies was reduced to a minimum as local residents are, as a rule, careful with fire and outside parties are controlled by their guide, who naturally protects his established territory.

In the timbered areas outside of the reserve, there is unfortunately, a small proportion of the people who are not at all averse to incendiarism. The number of such persons, however, is comparatively small, and there is reason to suppose that there are sufficient responsible settlers throughout the district to combat this danger to a very large extent.

Prevention of fire is largely the control of human activities. This is accomplished within the reserve by free travel permits, and in the fire ranging districts by free burning permits. These permits, in either case, are issued from this office or by rangers in the field, the permittees being given necessary precautions with regard to their handling of fire at the same time.

At boundary entrances to the reserve where there are no rangers and in the railways towns within the reserve, boxes and permit blanks are available for persons going into the forest so that they may register their presence without the necessity of going too far out of their way to actually report in person.

Co-operation from the public has been very good. Cases of travelling within the reserve or of burning in the fire ranging districts without permits have been practically negligible. Also on a number of occasions small fires have been wholly extinguished without reference to the forestry personnel.

Publicity during the past year has been largely confined to the issuance of travel and burning permits which entails direct contact between the staff and the public, and through such personal contact as is obtained through the patrol of the rangers. The only organized publicity which was undertaken was some distribution of forestry games amongst the school children of the district.

Except in periods of extreme hazard, the ground staff, consisting of the rangers, is not ordinarily occupied with detection other than as carried on in conjunction with their routine improvement work and general administration. Generally the lookout system is depended on altogether for fire detection, and the efficiency of this system has been found to be very close to one hundred per cent.

Fires are reported by telephone from either the Baseline or Coliseum lookouts as soon as they are located. A check is then made from the headquarters' lookout at Rocky Mountain House and, providing there has been no burning permit issued for the location designated, an investigation is immediately made.

The three lookouts, mentioned above, cover the entire area concerned, and as at least two of them may get bearings on almost any point, their efficiency is such that under ordinary conditions of visibility no fires should get too great a start to be effectively handled.

As a general rule suppression of any fire is controlled by the personnel of the district in which the fire occurs. However, should that of an adjoining district be more favourably located for early action by reason of labor supply or transportation, the initial

handling of the fire would be undertaken by them until such time as the regular personnel arrived. This applies to fires both inside and outside of the reserve with the exception of those outside the forest on land other than provincial land. In such cases the municipalities or individuals interested are required to control the fire, supervision being given by the personnel to ensure that it is not allowed to burn unchecked.

Within the reserve, improvements assisting in the suppression of fire have all been constructed by the reserve personnel, and are maintained in good serviceable condition. Such improvements consist of roads, trails and telephone lines with mileages as follows:

Roads	67½	miles
Trails	785	"
Telephone lines	181	"

In the outside districts, suppression activities are affected by public improvements throughout the area.

The equipment used in fire suppression varies from the highly specialized gasoline fire pumps and other purely fire-fighting instruments to the more plebian tools, such as shovels, axes, water pails, etc., of which there is a fairly satisfactory supply. These appliances are generally stored at the reserve and district headquarters whence they are sent out, as required, to fires as they occur. A small supply of tools is also kept at favourable locations throughout the district for outlying use where they will be immediately available in case of fires discovered which are small enough to be handled without the necessity of sending out any larger supply from headquarters.

During the past year, the losses from fire were reduced to a minimum. No large fires occurred anywhere within the district, and such incipient outbreaks as were experienced were readily controlled with very little expense.

Improvements

With the exception of a short period in the early fall, when it was considered necessary to hold the rangers within ready reach of their headquarters in case of fire, the past season was exceptionally wet, with the result that there was a minimum of fire hazard, and the personnel was enabled to devote the greater part of its time to improvement work. Such work was very largely expended on maintenance of existing projects which resulted in their being brought well up-to-date.

One important new project was undertaken in the construction of a cabin at the Shunda ranger station for the purpose of furnishing housing for the assistant ranger in this district. This work was carried on principally in periods of wet weather and solely by ranger labour. The cabin was not completed, there still remaining a part of the shingling and the interior finishing to be done.

A number of minor projects were also initiated during the season, consisting chiefly of secondary trails. Little time was available for this work, with the result that none of the projects were completed. They will, however, be added to from time to time until finished.

Maintenance work was applied to all classes of improvements such as buildings, telephone lines, roads, trails and miscellaneous projects. By far the greater part of the time was spent on telephone and trail work, the building and miscellaneous maintenance consisting almost entirely of routine in minor upkeep.

Telephone line and trail maintenance is of vital importance in the matter of fire detection and suppression. Such work varies from the simplest straight clearing work, through increasingly complicated upkeep of re-grading and drainage of trails and the re-hanging of wire for telephone lines, to the actual re-location stretches of either class, where the original locations have become so damaged as to require such action. All of this work was carried on during the past season, with the result that, with a few minor exceptions, all improvements were brought into excellent condition.

IMPROVEMENT STATEMENT

New Construction:		
Trails, secondary	5	miles
Trails, auxiliary	44	"
Cabins	1	
Wells	1	
Maintenance:		
Trails, primary	604.75	"
Trails, secondary	155.5	"
Roads	19.5	"
Telephone lines	176.50	"
Fences	15.75	"
Corrals	3	
Wells	1	
Ferries	1	
Flagpoles	1	
Ranger station houses	1	
Cabins	5	
Stables	2	
Other buildings	3	

Forest Administration

Silviculture.

The disposal of timber from this forest reserve under sale is not greatly influenced by general economic conditions, except in so far as the sales are practically all in favour of the several mining companies along the Brazeau subdivision of the Canadian National Railways and their operations, which are dependent on general conditions, determine the amount of timber taken out each year.

Timber permits on the reserve are normally taken out by settlers along the boundary only or by residents in the towns along the Canadian National Railways Brazeau subdivision, and in the great majority of cases only fuelwood was desired. Permits for the past year were possibly somewhat below normal, but not sufficiently so as to require comment.

Timber sales, as stated, were largely confined to the operations of the mining companies and, as their actual cuts are governed by their coal mining activities, there was no extensive cutting during the year, the mines having operated on very reduced schedules. Similar conditions having applied for several years past, it need only be stated that a considerable improvement may be anticipated as soon as general economic conditions improve.

Altogether, within the reserve, four timber sales were in operation and thirty-five timber permits were issued during the year.

In the timber districts outside the reserve timber sale or berth operations were practically at a standstill. Contracts were awarded

by the Canadian National Railways for a fair number of railway ties during the spring, and a considerable proportion of such ties was taken from berths. Apart from these railway ties, such operations were at a minimum.

The latest regulations placing some restrictions on permits, as compared with former procedure, no doubt resulted in there being a considerable reduction in the number of permits issued. Records show a total of forty-three permits for the year.

In addition to the operations mentioned, there has been some cutting of timber from patented lands. Such cutting has consisted very largely of mine props, railway ties and mine ties, large quantities of which are handled by dealers at Rocky Mountain House.

Grazing.

Although the Clearwater forest reserve provides a number of large areas of excellent grazing lands, these areas are very largely located at a considerable distance from the settled country and, as the routes of access for stock are confined to trails through the heavily wooded intervening country, there has never been any appreciable demand for range. Furthermore, the nearer settled country is not, to any extent, a stock raising one.

Such grazing permits as are issued for the reserve are practically all confined to local residents. These permittees commonly allow their stock, work and saddle horses and milk cows to remain on the range throughout the year, taking out the necessary permits to cover them. Under such circumstances, the use of the range is not apt to vary appreciably from year to year, at least until such time as general economic conditions show considerable improvement.

While there are comparatively few permits issued for the reserve, the available grazing is well utilized. Undoubtedly there are considerable number of stray horses throughout the range. However, the bulk of the range is occupied by large numbers of horses belonging to the Stoney Indians. These Indians are squatters who have established their residence within the reserve, and have allowed their horses to range throughout the area and to increase to numbers out of all proportion to their usefulness. In fact, by far the greater part of them are virtually wild horses.

Such Indian stock should undoubtedly be considered a trespass, however, as this condition has been allowed to go on from year to year since the formation of the reserves under the Dominion regime, and it is difficult at this time to arrive at any practical solution of the matter.

There is no doubt that the large numbers of trespass horses will have to be controlled in some manner before any definite grazing administration may be put into force. It is altogether probable that improved stock conditons will encourage an expansion of stock industry, possibly to a point where the use of some of the larger grazing areas of this reserve would be favourably considered by larger stock owners, and now would appear to be the time to arrive at some solution of the trespass stock before the possible demand for range becomes active.

NUMBER OF PERMITS AND STOCK GRAZED

Grazing permits—78, covering:	Cattle	41
	Horses	286

In addition to the above permits, a partial round-up of stray horses was carried out on the Clearwater river watershed. Unfavourable weather conditions interfered to a considerable extent with the success of this round-up, but a total of seventeen horses was disposed of from off the range. A second round-up is to be contracted for in the spring season, when it is thought that the stock will be more readily controlled.

Uses.

Under this heading may be considered all permits for miscellaneous occupancy of lands within the reserve, or, in other words, all permits not considered already under timber or grazing. During the year twenty-eight of such permits were issued as follows:

Cemeteries	1
Dams and pipe lines	3
Logging roads	5
Pastures	1
Power and telephone lines	4
Recreational buildings	1
Railway rights of way	2
Mineral surface rights	10
Trappers' cabins	1

With the exception of permits for the pasture and the trapper's cabin, the above permits were all in favour of commercial enterprises. These consisted of the several mining companies along the Brazeau subdivision of the Canadian National Railways and one lumber company located at Harlech.

Recreation.

The Clearwater forest reserve, while not as favourably located as the reserves to the south, being farther removed from good means of travel, furnishes, however, recreation to large numbers of persons during the open months of the year. Fishing, hunting and camping find many supporters throughout the area during the seasons, and 483 free permits were issued during this period, admitting slightly more than 1,000 persons. The fact that many of the residents of the towns along the railway do not secure permits on all occasions for their trips on the reserve would intimate that the above figures could be materially increased.

Public Relations.

Co-operation with the public, with respect to this reserve, is practically confined to those persons commonly utilizing the reserve for recreational purposes; also, to the Canadian National Railways and the mining companies located within the reserve along its right of way.

The recreational users of the reserve are very largely periodic visitors from year to year who appear to realize the value of protecting their interests, with the result that, with few exceptions, they fully co-operate with the reserve personnel. Co-operation from the commercial enterprises referred to is excellent, and leaves little to be desired.

In the fire ranging districts, adjoining the east boundary of the reserve, the co-operation given comes almost entirely from the settlers and municipal councils. From a fire viewpoint conditions are quite satisfactory. Practically no infractions of the fire laws have been noted, and excellent response from the municipalities has been given on those occasions when action has been requested.

From a timber standpoint, there appears to be some room for improvement, in that many of the settlers are not averse to removing timber from provincial lands without permits. It is not known to what extent this condition has been present in past years, but it is thought probable that present conditions have become aggravated due to the times, and settlers have taken this means of obtaining some ready money for current needs.

Unemployment Relief.

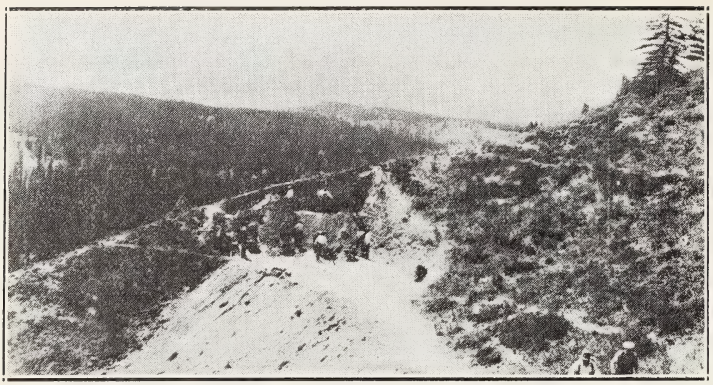
In line with the necessity of providing relief work for the many unemployed single men from the cities of the Province, the request came early in the year to establish two unemployment relief camps on the Clearwater forest reserve. These camps, Nos. 5 and 10, were originally opened on the 25th of May with a full complement of fifty relief workers to each camp.

The two camps operated continuously with varying numbers of workers until the middle of August. At this time camp 5 was transferred to the Department of Public Works and sent to take part in road operations from Nordegg to Rocky Mountain House.

Camp No. 10 continued alone on the Haven road work until mid-December, when it was supplemented by Camp No. 5, which was returned from the Nordegg-Rocky Mountain House road. A third camp, No. 11, was also sent in early in January, and these three camps continued to function throughout the remainder of the year.

Completed grade and clearing, brush to be burned

The work of these camps was all devoted to the Haven road, preliminary plans for its location having been prepared some years previously under federal control. The completed road will generally follow the main valley of the North Saskatchewan river from Nordegg to the boundary of Jasper Park, where it will connect with the road now being constructed between Lake Louise and Jasper. On completion, this road will furnish a main route of travel between the settled country to the east and Banff and Jasper



Beginning the grade down to the Bighorn River

Parks. In so doing it will provide a scenic and tourist highway through some of the most picturesque mountain country of Alberta.

The work done by the three camps consisted of all possible and requisite road work from simple clearing to actual grading of the right of way and the burning of the resultant brush as weather permitted. This work was carried out over a distance of approximately 18½ miles from station 129 to station 1119. The following was accomplished.

Clearing and brush–burning	99,000 ft.
Grubbing stumps	90,000 ft.
Grading (not standard)	29,700 ft.
Bridges (incomplete)	2
Culverts (standard grade)	11

No attempt was made in doing the grading to construct any specified standard. The intention was rather to furnish a general operation which could later be brought up to standard by machine work. The present grade furnishes excellent transportation facilities for any machinery which might be required for the completion of the road, and it also provides good working conditions for such machinery.

During the progress of the camps, 23,538 man work-days were put in on the road, furnishing that amount of single unemployment relief.

In consideration of the fact that practically all of the work done was the result of straight hand labour, a survey of the total length covered will show very satisfactory results.

BRAZEAU-ATHABASKA FOREST

REPORT OF THE FOREST SUPERVISOR, F. G. EDGAR, COALSPUR, ALBERTA

The Brazeau-Athabaska forest consists of two divisions of the Rocky Mountains Forest Reserve, one lying to the north and the other to the south of the Athabaska valley. The northern or Athabaska division lies along the eastern and northern boundary of Jasper Park and British Columbia boundary from the Athabaska

valley on the south to the sixteenth base line on the north, and is approximately 3,822 square miles in area. The southern or Brazeau division with an approximate area of 1,819 square miles lies along the eastern boundary of Jasper Park from the Athabaska valley on the north to the Brazeau river on the south.

In addition to these two divisons the officers of this forest are responsible for fire detection and suppression in two adjoining areas not included in the forest itself. The first is the Athabaska River valley, an area of 129 square miles which separates the two divisions of this forest. The second is bounded on the south and west by the Athabaska division of this forest, on the east by the sixth Meridian, and on the north by the sixteenth base line, and contains approximately 1,358 square miles.

Unit	Area
Athabaska division	3,822 square miles
Brazeau division	1,819 " "
Athabaska district	129 " "
Northern district	1,358 " "
TOTAL	7,128 " "

All of this area is rough foothill and mountain country, intersected by numerous rivers and streams. Except for a few patches of meadowland along some of the river and stream valleys, it is all covered with forest growth.

The activities of the forest staff during the past year can be divided into three main classes as follows:

PROTECTION—The prevention, detection and suppression of fires.

IMPROVEMENTS—The construction of new improvement projects and the maintenance of all existing improvements.

ADMINISTRATION—The regulation of timber operations, grazing, uses of land, game and fish protection, etc.

FIELD STAFF ACTIVITIES—BRAZEAU–ATHABASKA FOREST

Classification	Man–days worked
Improvements: New construction	312
Maintenance	953
Fire–fighting	32.5
Fire patrol (including lookout services)	1,529
Timber	48
Grazing	26.5
Fish	20
Game	12
Uses of land	32
Claims	17.5
Miscellaneous executive duties	565.5
Care of equipment	191.5
Fuel supply	70.5
Haying	64
Travel	35.5
Days lost on account of weather	74.5
TOTAL	3,984

To carry on the work mentioned, the following staff was maintained during the year: one supervisor, one forest clerk, one full time ranger, one ranger employed eight months at full pay and four months at half-pay, five district rangers, eleven assistant rangers and four lookout men.

Last spring the Athabaska forest lying to the north of the Athabaska valley and the Brazeau forest lying to the south of the Athabaska valley, formerly two separate forests, were amalgamated into the Brazeau-Athabaska forest and were placed in charge of one supervisor, with headquarters at Coalspur, Alberta. The former supervisor of the Athabaska forest was given a ranger position, whilst six former rangers were changed from full time to seasonal

work. This effected a large saving to the Department, and the staff is now at a minimum to handle efficiently the necessary work on the forest.

This forest is divided into eight ranger districts with a ranger in charge of each. During the months of greatest fire hazard most of these rangers are assisted by from one to three assistant rangers, depending on the size of their districts.

Forest Protection

Forest reserves are planned and set aside not only for the conservation of timber resources, but also for the protection of headwaters of streams and rivers. It is of greatest importance that these areas be kept free from fires, which not only destroy the standing timber and ground cover, but frequently burn off the soil itself right down to the underlying rock.

Fire protection is therefore the most important activity on this forest reserve. Due to the fact that there are several railway lines crossing this forest and that there is quite a large resident population, fire protection is a serious problem. Fires caused by sparks from locomotives have decreased greatly during the past few years due to the introduction of new types of locomotives with improved spark arresters, and also because the railway is burning a better class of coal in its engines. Fortunately the past season was not one of great fire hazard except for short periods during the months of June, August, and September. Rainfall was decidedly up to the average and was well distributed throughout the season.

In spite of the favourable weather conditions, it was necessary to suppress a total of twenty-one fires during this period. Ten of these were attributed to carelessness on the part of campers and travellers, four to railways, three to lightning, three to incendiarism and one to unknown cause. They burned over a total of 1,300.42 acres and cost $394.33 to supress. The loss in timber was $3,917.95.

Travel in the forest was regulated during the year by means of permits or registration. Persons making a short trip of two days or less were required to fill out a registration form, stating where they intended to travel or camp and how long they would be away. Supplies of these forms were kept either by the postmaster or by a storekeeper at each one of the mining camps situated in the forest. These forms, when filled out and signed by the traveller, were deposited in boxes provided for that purpose and collected at frequent intervals by the rangers. Persons making a prolonged trip for the purpose of camping, fishing, or hunting were required to secure a free permit directly from one of the rangers, the head of each family or party only being required to fill out the form. During the past season 550 of these forms were filled out, and as each of them covered an average of two people, approximately 1,100 people made use of this forest for recreational purposes. These systems help to a great extent in controlling travel and in making travellers more careful about leaving unextinguished camp fires behind them.

A considerable amount of publicity throughout the past season was given to forestry work, emphasizing its aims by the fish and game associations in the district. These associations seem ready at

all times to co-operate in every way possible with a view to conserving forest resources. The Canadian National Railway Company also does its part in fire prevention. Velocipede patrols were made by railway sectionmen whenever weather conditions made them necessary, and railway officials were always prompt in reporting fires even if they were not on railway rights of way.

Fire posters were extensively distributed throughout the mining camps and along all principal trails. Tree games supplied to this area for publicity purposes by head office were distributed to pupils attending school in the district, and in several cases the rangers gave talks on fire protection to the pupils in the schools. Where picture shows operate in the mining camps, fire warnings were flashed on the screen during very dry periods.

Four lookout towers or cabins were manned during the fire season. As there was little heavy smoke from outside fires drifting about this past summer, this lookout system of fire detection proved very effective. Thanks to the promptness of the lookouts in reporting smoke and quick action on the part of the ranger staff, all fires but one were confined to small areas. The one fire that got a good start before action could be taken was a lightning fire which started in a remote mountainous section of the forest and in an area not served by telephone communication. As a result no direct notification could be sent from the lookout man to the district ranger, and it was almost two days before a suppression crew could reach the place. In the meantime a heavy rain had stopped the fire from spreading so that it burned badly for only one day.

As stated before, this forest is divided into eight main ranger districts with a senior ranger in charge of each. With one exception these rangers have telephone communication with the lookouts so that they receive prompt notification of the start of fires. There is sufficient fire-fighting equipment kept in each district to furnish a small crew. If more is required it can be secured from Entrance in the Athabaska division or from Coalspur in the Brazeau division, reserve stocks being kept at both of these points.

Practically all parts of the forest are made accessible by forestry built trails. These are supplemented by Indian trails, logging roads and old tote roads.

At the time of the transfer of the natural resources from the Dominion to the Provincial Government, this forest was well supplied with fire-fighting equipment. As a result very little has been purchased since that date. The only large item secured during the past year was 2,000 feet of high pressure fire hose. All equipment was kept in good repair throughout the year, and was always ready for instant use.

Improvements

Due to lack of funds a number of proposed improvement projects had to be abandoned for the time being. Only a few that could be completed with very little cash outlay were undertaken. A new patrol cabin was erected on the Smoky river in a district where there had been no cabins before. This district is subject to many early and late snowstorms and a permanent shelter of some kind was a necessity. The cabin was constructed of logs with pole rafters, hewn log floor and shingles manufactured right on the spot.

The only cash outlay was for a few nails. Another cabin on the Brazeau river, which had been built several seasons ago, was completed by substituting plaster for the original moss chinking. All other new projects undertaken were of a minor nature, such as a short section of new road, pasture fences, footbridges, etc.

The principal work of the year was the maintenance of existing improvements. Every year a great amount of work has to be done on the numerous miles of trails and telephone lines through this forest. In former years it was the custom to have a small trail crew under a foreman do a good portion of this maintenance work. For the past few years, very little extra labour has been employed in assisting the ranger staff to do this work. However, during the past year, all the trails and telephone lines were gone over and maintained in a satisfactory state. Buildings and pasture fences were repaired as well as other improvement projects. Below is a list of new construction and construction, previously completed, on which maintenance work was performed during the year:

IMPROVEMENT STATEMENT

New Construction:		
Cabins	2	
Roads	1.3	miles
Trails, secondary (constructed)	12	"
Trails, secondary (located only)	26	"
Footbridges (with span of 69 ft.)	2	
Fences (completed)	4.75	"
Fences (partly completed)	1.25	"
Acres cleared for growing feed	2½	
1 well dug—4'6" x 4'6" x 12'.		
Maintenance:		
Houses	6	
Cabins	9	
Office	1	
Speeder houses	2	
Barns	3	
Bunk house	1	
Telephone lines	199	miles
Roads	4.5	"
Trails: Primary	352.5	"
Secondary	294.7	"
Auxiliary	57.5	"
Fences (approximately 15.75 miles)	12	
Grounds	6	
Corrals	1	
Pasture	1	
Nursery	1	
Water supply system	1	

Forest Administration.

Silviculture.

Timber operations on this forest were at a low ebb during the past season. Out of nine sales carried on the books during the year, only three were active. This state of affairs was due to the fact that there was little demand for sawn lumber. The railways were buying few ties and the mines were operating only part time, resulting in fewer mine timbers being used. Receipts from timber sales were slightly lower than for the previous year. Following is the cut on timber sales during the year:

501,486 ft. b.m. saw timber
137,324 lineal ft. dry props
241,848 lineal ft. green props
672 mine ties

Two new sales were awarded on the forest this year. These were bid in by local mining companies, and contained 1,500,000 lineal feet of dry timber and 600,000 lineal feet of green timber, all to be used for the manufacture of mine props and mine ties.

As there is no farming district bordering this forest, the sale of fuel-wood under permit was limited to the residents of the mining camps, to whom a small number of such permits were issued. There was also sold under permit during the year a small amount of building logs, corral poles, mine props and lagging. A statement is given herewith of the amount of material disposed of in this way:

Fuel–wood, cords	82
Mine timbers, lineal feet	32,800
Lagging, lineal feet	200,000
Building logs, lineal feet	13,989
Poles, pieces	591

Grazing.

The Brazeau-Athabaska forest, especially the Brazeau division of this forest, cannot be considered as a good grazing area. The meadows which exist are confined to the river and stream bottoms. They are small in extent and inclined in many instances to be very soft.

As the country to the east of this forest is mostly forested and not settled up, there is no demand for summer grazing by the settlers from outside. Grazing permits are therefore confined to parties who keep saddle stock for recreational purposes, to a few dairymen who supply milk to the mining camps and to several outfitters who run their saddle and pack horses on the forest.

Grazing conditions were ideal as the grass came early, was plentiful, and did not freeze down until late in the fall. Winter grazing conditions, however, were not good as snow fell early and deep, and continued to pile up all that season. As a result, a number of horses and much big game died during the late winter and early spring from starvation.

This forest has never been over grazed and could support many times the amount of stock that is on it at the present time.

NUMBER OF PERMITS AND TOTAL STOCK GRAZED

Grazing permits—113, covering:	Cattle	103
	Horses	549

Uses.

The Forest Service issues leases and permits to cover all uses affecting the surface of land included in the forest and also collects all revenue derived therefrom. These uses include such projects as townsites, railway rights of way, trappers' cabins, hunting lodges, boat-houses, prospectors' cabins, telephone lines, logging and haul roads, landing fields, etc. The following were active during the year:

Townsite leases and permits	25
Trapper's cabin permits	19
Hunting lodge permit	1
Boat–house permit	1
Telephone line permits	2
Prospector's cabin permits	3
Logging road permits	5
Haul road permit	1
Landing field permit	1
Cemetery permit	1
Dam permit	1
Cultivation permit	1
Railway right of way permits	4

Recreation.

This forest is not used for recreational purposes nearly as much as the forests to the south. This is due to the fact that it is not near any large centre of population and is not made accessible to

the motorist. The local resident population, however, takes advantage of the good fishing and hunting that this forest provides, and parties of campers, fishermen and hunters may be met scattered over the area at any time during the summer and early fall months.

Co-operation.

The forest officers try at all times to enlist the support of the public. Forest regulations are rigorously but tactfully enforced, and it would seem that the public is right behind the endeavour to preserve and protect all natural resources. The local fish and game associations are a great help in advancing the idea of conservation and fire prevention.

In spite of the fact that the majority of the field force has had to accept very severe salary cuts during the year, they still seem to have the interests of the Provincial Forest Service at heart, and are carrying on to the best of their ability. Co-operation between head office and the field office has been of the best ever since the formation of the Provincial Forest Service.

The Forest Service handled no unemployment relief camps on this forest during the year.

Fisheries

REPORT OF THE DIRECTOR OF FISHERIES, R. T. RODD

The unsatisfactory economic conditions which had previously influenced the disposal of commercial fish for export remained unchanged for the fiscal year ended March 31st, 1933. The situation is still adversely affected by lack of markets. Decreases are also noticed in domestic fishing and angling as well as in the sale of permits and licenses.

The condition of the fisheries throughout the Province, however, both commercially and from a sporting point of view, was very satisfactory. With the exception of the usual drought prevailing in southern Alberta, which affected some of the streams, trout fishing gave excellent sport. The situation has been closely watched by inspectors and guardians employed and fish in danger of being stranded through low water were rescued and placed in streams which were more favourable, undesirable fish, at the same time, being removed. All the commercial lakes showed improvement. Invariably angling was good, and not much difficulty was experienced in obtaining satisfactory catches.

Commercial Fishing

Commercial production for the period covered by this report amounts to a total of 2,655,214 pounds, a reduction from that reported on for the fiscal year ending March 31st, 1932, of 682,766 pounds. Value to the fishermen shows a drop of $21,488.35 and value as marketed a reduction of $59,119.37. Prices as a whole were unsatisfactory, and operating companies and fishermen had a most difficult year.

Very little new equipment was purchased as a result of the low prices obtainable for products. However, operations on Wabamun and Pigeon lakes were reported as being satisfactory and some profits were made.

Owing to heavy production of trout from the Great Lakes which was almost sufficient to supply the eastern markets, the fishing on Lake Athabasca was kept at a minimum during the season under report. It is extremely doubtful as to whether this lake will be fished to any great extent until market conditions improve.

Fewer fishermen operated at Lesser Slave Lake, which ranks second in importance from a commercial viewpoint. The summer season for fishing showed a large production of pickerel with a fair catch of whitefish which was about all the markets could absorb. The latter species of fish were in evidence all over the lake, but no large schools were discovered and no large individual catches obtained. This lake, which was depleted by over fishing some years ago, is showing signs of improvement, and great numbers of young whitefish are now reported by fishermen. With extensive fishing for pike and pickerel, as now permitted by special arrangement, and with restocking of the more valued species carried on, Lesser Slave will in a few years time be once more an important producer

of whitefish. Lac la Biche shows a large reduction over the previous year, mainly due to marketing difficulties. This lake has been heavily fished for a number of years, and while still in good condition will benefit by the lighter fishing carried on this last two seasons.

Very little if any tullibee could be disposed of, and the catch of this particular class of fish from Lac la Biche where considerable quantities are found was small.

The winter catch at Cold lake was good, but running heavily to whitefish. This is due to the present regulations enacted to prevent the depletion of trout which do not reproduce so rapidly and which are more valuable, from an angling standpoint, as this mode of fishing brings more money to the district. A large quantity of the production from this lake was frozen and marketed locally. Some of the fishing in Cold lake being carried on east of the Alberta-Saskatchewan boundary, the catch from that area was not included in the Alberta production.

This and the fact that no commercial fishing was carried on in Primrose lake in Alberta or west of the boundary may also be given as a reason for the smaller total production in the Province during this year. A good average catch was obtained at Christina lake north of Lac la Biche during the summer which was disposed of satisfactorily. Very little fishing was carried on in Winnifred lake, as this water cannot be fished during the summer due to the difficulty in making a road which would be chiefly through muskeg. The fish are small and not of the same quality as those produced in other lakes, and the price obtainable did not warrant the extra cost of production during the winter season.

A slightly larger catch was taken from Big Whitefish lake and Little Whitefish lake, No. 2, a greater percentage of which was shipped unfrozen. These fish demanded a better price on account of their size.

At Pigeon lake the catch was taken in a very short while, the limitation being slightly exceeded. The number of fishermen operating on this water has been greater for the last few seasons than on any other lake in the Province, and with so large a production in so short a time some difficulty was experienced in disposing of the catch to the best advantage. It is satisfactory to report that the fish from this lake, which formerly were small, have increased in size and weight and are now in good demand in all markets where they are known. A small increase in the winter limitation was allowed on both Pigeon and Wabamun lakes, such increase, on the latter, to be deducted from the following summer limitation. The fish from Wabamun lake are also of excellent quality and demand a good price. As both Pigeon and Wabamun lakes are fished close to the danger mark, a very close check on the yearly catch is necessary to prevent depletion.

Pinehurst, Touchwood, Beaver, Newell and McGregor lakes produced about the usual quantity taken from these waters. Trout and Wabasca lakes were also fished during the season, but owing to the additional cost of transportation to the railway it was found to be unprofitable, and was discontinued after a short trial.

The following table gives the amounts and values of the different species of fish taken by commercial fishing during the fiscal year:

TOTAL AMOUNT OF FISH TAKEN FOR COMMERCIAL PURPOSES—IN ORDER OF IMPORTANCE

		Weight		Value to Fishermen		Value as Marketed	
WHITEFISH	May 16/32 to Sept. 30/32	347,309		$15,629.22		$ 22,029.36	
	Dec. 1/32 to Dec. 31/32	251,567		8,816.98		14,277.62	
	Jan. 1/33 to Mar. 31/33	491,675		21,839.32		29,883.43	
			1,090,551		$46,285.52		$ 66,190.41
LAKE TROUT	May 16/32 to Sept. 30/32	66,930		$ 2,007.90		$ 4,685.10	
	Dec. 1/32 to Dec. 31/32	8,832		489.78		529.92	
	Jan. 1/33 to Mar. 31/33	15,665		620.22		923.20	
			91,427		3,117.90		6,138.22
PIKE	May 16/32 to Sept. 30/32	97,897		$ 1,996.38		$ 2,289.48	
	Dec. 1/32 to Dec. 31/32	102,803		2,402.59		2,402.59	
	Jan. 1/33 to Mar. 31/33	217,131		4,472.39		4,854.72	
			417,831		8,871.36		9,546.79
PICKEREL	May 16/32 to Sept. 30/32	363,121		$21,403.84		$ 27,579.42	
	Dec. 1/32 to Dec. 31/32	75,235		1,756.73		3,907.13	
	Jan. 1/33 to Mar. 31/33	264,219		9,233.04		13,007.81	
			702,575		32,393.61		44,494.36
TULLIBEE	May 16/32 to Sept. 30/32	35,133		677.72		$ 686.22	
	Dec. 1/32 to Dec. 31/32	48,610		870.30		1,110.90	
	Jan. 1/33 to Mar. 31/33	48,870		875.30		898.30	
			132,613		2,423.32		2,695.42
PERCH	May 16/32 to Sept. 30/32	13,797		$ 635.26		$ 970.26	
	Dec. 1/32 to Dec. 31/32	1,290		52.60		52.60	
	Jan. 1/33 to Mar. 31/33	6,113		235.68		295.15	
			21,200		923.54		1,318.01
SUCKERS, LING, GOLDEYES, MULLETS	May 16/32 to Sept. 30/32	117,939		$ 215.50		$ 216.40	
	Dec. 1/32 to Dec. 31/32	32,031		162.89		162.89	
	Jan. 1/33 to Mar. 31/33	49,047		46.01		46.01	
			199,017		424.40		425.30
	TOTALS	2,655,214	2,655,214	$94,439.65	$94,439.65	$130,808.51	$130,808.51

Equipment

Very little new equipment was purchased during the period covered by this report. Many of the fishermen who were well supplied when there was a good demand for fish were able to carry on with what they had when the markets diminished by reducing their operations. Some have taken up other occupations and have disposed of their nets and fishing gear to those still in the business. This applied to boats as well as nets, so that no new boats were therefore required.

Markets

While there was very little, if any, improvement in the export market, except in March when the Jewish trade was an important factor during the time of Festival, some change for the better was apparent in the local demand. The Fisheries Division co-operated with the fishermen and dealers to meet their requirements, and when possible granted extensions to the seasons to meet market conditions.

In an endeavour to further assist in the sale of fish locally the Division at the Edmonton Exhibition continuously displayed a variety of the food and game fishes found in the Province. Demonstrations were also given daily during the entire exhibition in the cleaning, filleting and preparation of fish for cooking. Different varieties of fish were used, the prepared food being given away after each one. Many thousands of people viewed the display and were interested in the demonstrations and success of this feature was evidenced by the fact that a large increase was noticed in the sale of fish, the local dealers having some difficulty at the time in obtaining a supply to meet the demand, which was attributed to this educational work.

In a further effort to increase the consumption of fish in this Province the Department is co-operating with the federal Department of Fisheries in arranging for a series of lectures and radio talks to be given in the larger cities throughout the Province on the food and health values of fish, and cooking demonstrations will also be given wherever possible. This campaign will cover a period of approximately six weeks beginning in April, and will be carried on by that Department's cookery specialist, Mrs. Eveline Spencer.

Judging from reports from other provinces on the success of this work there is every reason to believe that the fishing industry in this Province will also be greatly benefited, especially as a considerable amount of local fish will be used in the demonstrations.

Until the economic situation is changed there is no question that the increase in the local markets will be the chief factor in assisting fishing from a commercial point of view so far as this Province is concerned.

Transportation

Motor trucks are now the chief means of transportation from the lakes. No difficulty was experienced in their operation until towards the end of the season, February and March, when heavy snows prevented their further use, and teams had to be used with the exception of two instances, when aeroplanes were operated to transport fish from the more distant lakes. This method of trans-

portation is becoming popular, and should markets warrant, planes will no doubt be used extensively in freighting from greater distances.

Domestic Fishing

This phase of fishing continues to be heavy although a decrease is shown over last season in the number of licenses sold and in the amount of fish taken, possibly due to more angling being carried on by farmers and settlers living close to lakes where free angling is allowed residents of the Province. It is thought that some of those who in former years obtained a domestic license were unable during this period to raise sufficient money for the license fee or purchase of net. The most popular lakes for domestic fishing are Pigeon, Wabamun, Lac la Nonne, Buck, Chin, Cold, Newell, Lac St. Anne, McGregor and Buffalo, all situated in the heart of the farming districts. The estimated amount of fish taken under domestic licenses during the fiscal year was 458,000 pounds, a decrease from the previous year of 89,078 pounds.

Indian Fishing

It will be seen from the record of licenses shown later in this report that there was an increase in the number of free permits issued to Indians amounting to 124. An increase of 124,000 pounds is also shown in the amount of fish taken by them as compared with the previous year. The estimated amount taken during the year was 860,000 pounds of all classes of fish.

Occasional trouble is still experienced in the control of Indian fishing, some of them resenting any kind of regulation that will limit their privileges. Indian agents in this particular are always willing to co-operate with this Division in the matter of enforcement.

Licenses and Permits

A decrease is shown in the number of licenses and permits issued, fishermen and commercial licenses being 157 less in number than the previous year, with domestic licenses reduced by 97. There was also a big decrease in the number of angling permits sold by both the Fisheries and Forestry Divisions, which amounted to 1,658. Indian permits showed an increase of 124. The large decrease in the number of angling permits was due entirely to the economic condition prevailing, a number of sportsmen advising that they were unable to take advantage of this sport because of finances. Many had to sell or cease operating their cars, unless retained for business purposes, and were therefore unable to get to the favourite fishing spots. The following shows the summary of licenses sold and issued during the last three fiscal years:

Fiscal Year	*1930–31	1931–32	1932–33
Domestic licenses	566	555	458
Fisherman and commercial licenses	1,033	755	598
Angling permits sold by Fisheries Division	7,731	6,533	4,963
Angling permits sold by Forestry Division	.....	566	478
Indian permits	1,130	736	860
TOTALS	10,460	9,145	7,357

*Six months to March 31.

Angling

While there was a decrease in the number of angling permits issued, angling still continues to be the more popular form of fishing for coarser varieties of fish. This especially applies to lakes where only species of this nature are found, and farmers and new settlers living close to these waters are responsible for the larger percentage of such catches. The decrease in amount of fish taken is due chiefly to anglers from the cities being unable to afford the operation of their cars and also due to the fact that deep snow during the winter months made the roads difficult for motor travel. This latter reason was perhaps the chief one which caused the decrease. There are numerous lakes throughout the Province where good fishing may be obtained and where no angling permits are required by residents.

Angling in the trout streams of the foothills was good, especially in the Bow and Highwood rivers, and splendid reports were also obtained of grayling and trout fishing around Edson. Reports received from the last named district stated that fishing was excellent and that the extensive stocking with rainbow was showing good results. The catch of over fifty per cent. of rainbow in the Bow and Highwood rivers amply proves that stocking with fry from the various hatcheries is worth while. The estimated amount of fish of different species taken by angling during the fiscal year was as follows:

Trout	220,638 pounds	60,837 decrease
Rocky mountain whitefish	135,000 "	44,500 increase
Arctic grayling	67,000 "	19,000 decrease
Goldeyes	4,290 "	8,250 "
Pickerel	177,876 "	137,254 "
Perch	219,625 "	32,675 "
Pike	858,243 "	318,706 "
TOTAL	1,682,672 pounds	

Observance of the Regulations

Prosecutions during the fiscal year under review numbered 89, an increase of 21, and the number of confiscations amounted to 68, or an increase of 28. The following is a summary of the prosecutions which materialized during the year:

Fishing without a license	16
Angling without a permit	15
Fishing in closed stream	14
Fishing in closed season	8
Fishing with illegal nets	7
Having illegal sized trout in possession	4
Pollution of waters	4
Excess of nets	3
Selling fish caught when commercial fishing prohibited	3
Not having license number on nets, etc.	3
Selling fish caught on domestic licenses	2
Failing to keep ice clean of waste	2
Refusing to obey a fishery officer's instructions	3
Fishing outside prescribed area	1
Prevention of waste under section 16	1
Having fish in possession during closed season	1
Purchasing fish caught under domestic license	1
Selling fish caught under Indian permits	1
TOTAL	89

It will be noticed that the greater number of offences committed were for fishing and angling without licenses.

In the enforcement of the regulations much assistance was given by the various fish and game protective associations. With the

large total membership of these organizations throughout the Province, together with the jealous watchfulness of conditions generally, these organizations have proved to be of especial value when the immense size of the territory under review is taken into consideration. Excellent assistance was also given by the Forestry staff and the Royal Canadian Mounted Police, and the Fisheries officers with this assistance were able to keep a close watch on the fishing throughout the Province.

Irrigation

At the close of the season there were some forty-four irrigation schemes in existence in the Province which affected the Fisheries to a greater or lesser degree. As pointed out in former reports these schemes when in operation require regular inspection by the Fisheries' officers to see that the necessary screens are installed where required and are kept in condition. With one or two exceptions no difficulties were experienced as in nearly every case the owner appeared only too willing to co-operate in every way in preventing loss of fish.

In addition to the above some nineteen new schemes were dealt with in conjunction with the Water Resources Branch where much information and assistance was most willingly given. By this co-operation considerable time and expense was saved, and it is pleasing to report that the loss of fish through these irrigation schemes was very small and was more than made up for by the new fishing now obtainable in the several large reservoirs which are created.

Dams and Fishways

In addition to five dams erected in connection with the larger irrigation systems there were at the end of the year forty-six others, large and small, built in the streams for power or storage purposes which affected the fisheries. A large number are supplied with fishways. Occasionally a fishway is not required where such construction would not be beneficial, and in the few very large dams the installation of an operative fishway is not possible. All dams are regularly inspected by the Fisheries' officers during the summer seasons and especially during the periods of fish migration.

In a number of instances dams without fishways have proved beneficial, as they have not only created deep pools or lakes, but have also prevented predaceous or destructive fish such as pike, pickerel and suckers from ascending to the trout waters.

Pollution of Water

Little difficulty was experienced with regard to pollution during the season. The co-operation rendered by the Forestry, and Petroleum and Natural Gas Divisions of the Department in checking sawmills, oil wells and refineries assisted greatly in preventing contamination. Only four prosecutions were necessary during the year for these offences, when convictions were secured against coal companies, one sawmill operator and one power company.

The city of Calgary during the year completed a large sewage disposal plant capable of taking care of sewage from the city for

some time to come. The city of Edmonton enlarged and improved the plants which were already in operation.

Fish Culture

This important branch of the Division's work was again carried out very satisfactorily by the various officers directly responsible.

The hearty co-operation of the federal Department of Fisheries, the National Parks Branch and the superintendents of the game fish hatcheries within the parks, in arranging for the supply of eggs, hatching and distribution of fry and fingerlings into provincial waters outside the parks, enabled this Division to carry on the work of restocking streams and other suitable waters of the Province successfully and at a very reasonable expense. But, as shown in former reports, the increasing demand and necessity for restocking will in the near future compel this Government to maintain its own game fish hatcheries in districts which cannot be readily stocked from the federal hatcheries within the parks, the capacity of which is limited. The existing arrangement with the federal Government, however, is most satisfactory for the present time.

Owing to drought in the southern part of the Province some of the streams became dangerously low, and great care was therefore necessary in distributing the fry, as there was a danger of loss through waters becoming too warm or the young fish just liberated becoming stranded. In some instances, therefore, heavier plantings were necessary in those streams where this danger was not present.

A peculiar characteristic of the wild trout, or the product of the hatcheries after they have become established in the streams, is their instinct to seek better waters immediately the streams become low and warm. Very few trout become stranded if the water recedes gradually unless they are completely cut off and cannot escape. The characteristic of self-preservation in this respect does not apply to young fish just liberated from a hatchery, the instinct developing later.

While the number of plantings from the Waterton hatchery showed a small increase over the previous year, the number in the district adjacent to that establishment was actually less, part of the supply being transferred to the district taken care of by the Banff hatchery, where a decrease of plantings was shown.

The failure on the part of one fish farm in its delivery to the Banff hatchery of the total number of rainbow eggs contracted for necessitated this transfer from Waterton to partly make up the Banff shortage. The transfer was made possible on account of the drought mentioned.

During the year there were 65 plantings of fry made from Waterton hatchery, 61 from Banff and 21 from Jasper into waters outside the parks. The details of this distribution are as follows:

WATERTON

TRIBUTARIES OF SHEEP CREEK:

Name of Waters	Cutthroat	Loch Leven	Rainbow
North Sheep creek	15,000	.....	.....
Fisher creek	15,000	.....	.....
King creek	5,000	.....	.....
Ware creek	10,000	.....	.....
South Sheep creek	20,000	.....	.....
Blue Rock creek	10,000	.....	.....
Canyon creek	10,000	.....	.....

Name of Waters	Cutthroat	Loch Leven	Rainbow
Gorge creek	10,000	.....	.....
Long Prairie creek	10,000	.....	.....
Wolf creek	10,000	.....	.....
Spring creek	10,000	.....	.....
TRIBUTARIES OF OLD MAN RIVER:			
Adair creek	10,000	.....	.....
Bobs creek	30,000	.....	.....
Burton creek	10,000	.....	.....
Beaverdam creek	30,000	.....	.....
Callum creek	30,000	.....	.....
Damon creek	10,000	.....	.....
Ernest creek	10,000	.....	.....
Fly creek	5,000	.....	.....
Grave creek	10,000	.....	.....
Heath creek	30,000	.....	.....
Hidden creek and tributaries	80,000	.....	.....
Livingston river	35,000	.....	.....
North creek	15,000	.....	.....
Playle creek	10,000	.....	.....
Race Horse creek	30,000	.....	.....
Race Horse creek Beaver dams	30,000	.....	.....
Sharples creek	20,000	.....	.....
Spring creek	25,000	.....	.....
Station creek	5,000	.....	.....
Beaver creek	10,000	.....	.....
TRIBUTARIES OF ST. MARY'S RIVER:			
Lee creek	30,000	.....	.....
Tough creek	10,000	.....	.....
TRIBUTARIES OF CASTLE RIVER:			
Beaver Mines creek	.....	.....	5,000
Gladstone creek	.....	.....	12,000
Mill creek	.....	.....	12,000
Whitney creek	.....	.....	6,000
TRIBUTARIES OF CROWSNEST RIVER:			
Beauvis lake	.....	.....	5,500
Allison creek	.....	.....	10,000
Blairmore creek	.....	.....	10,000
Burmis creek	.....	.....	5,000
Byron creek	.....	.....	10,000
Crowsnest lake	.....	.....	20,000
Gold creek	.....	.....	10,000
McGillivray creek	.....	.....	5,000
Star creek	.....	.....	10,000
Pincher creek	.....	.....	30,000
WILLOW CREEK AND TRIBUTARIES:			
Burke creek	.....	.....	10,000
Johnson creek	25,000	.....	.....
Kuntz creek	.....	.....	5,000
Langford creek	.....	.....	5,000
Lyndon creek	.....	.....	20,000
Nelson creek	.....	.....	5,000
North Fork Willow creek	20,000	.....	.....
Patterson creek	.....	.....	5,000
Rice creek	10,000	.....	.....
Riley creek	.....	.....	5,000
South Fork Willow creek	.....	.....	15,000
Trout creek	.....	.....	20,000
TRIBUTARIES OF WATERTON RIVER:			
Carpentier creek	.....	.....	10,000
Cottonwood creek	.....	.....	10,000
Drywood creek	.....	.....	15,000
Pine creek	.....	.....	15,000
Trail creek	.....	.....	5,000
Yarrow creek	.....	.....	10,000
TOTAL	655,000	.....	305,500

BANFF

TRIBUTARY OF BATTLE RIVER:			
Pigeon lake	.....	40,000	.....
TRIBUTARIES OF RED DEER RIVER:			
Birch lake	.....	30,000	.....
Dobbs lake	.....	10,000	.....
Horseshoe lake, No. 1	.....	10,000	.....
Horseshoe lake, No. 2	.....	5,000	.....
Rainy lake	.....	15,000	.....
Bearberry creek	.....	15,000	.....
Smith's creek	.....	10,000	.....
Castle creek	.....	200	.....

Name of Waters	Cutthroat	Loch Leven	Rainbow
Bear creek	.....	10,000	.....
Beaver Spring creek	.....	10,000	.....
Dogpound creek	.....	15,000	.....
Swanson creek	.....	5,000	.....
Road creek	.....	9,680	.....
Raven river	.....	24,800	.....
Beaver lake	.....	15,000	.....
Spring creek	.....	15,000	.....
Twin Spring creek	.....	5,000	.....
Wammick lake, No. 1	.....	10,000	.....
Wammick lake, No. 2	.....	5,000	.....
Wammick lake, No. 3	.....	5,000	.....
Wammick lake, No. 4	.....	5,000	.....
Wammick lake, No. 5	.....	5,000	.....
TRIBUTARIES OF NORTH SASKATCHEWAN RIVER:			
Brule creek	.....	6,000	.....
Chambers creek	.....	15,000	.....
Lawrence creek	.....	12,000	.....
Ruth creek	.....	12,000	.....
Alfred creek	.....	10,000	.....
Muskeg creek	.....	5,000	.....
Prairie creek	.....	5,000	.....
Sucker lake	.....	10,000	.....
Suhr creek	.....	10,000	.....
Shunda creek	.....	10,000	.....
Fish lake	.....	10,000	.....
Wabamun lake	.....	40,000	.....
TRIBUTARIES OF BOW RIVER:			
Big Hill creek	30,000	.....	.....
Chiniki lake	25,000	.....	.....
Exshaw lakes	25,000	.....	.....
Gapp creek	5,000	.....	.....
Eau Claire creek	18,000	.....	.....
Haymeadow creek	30,000	.....	.....
Jumpingpound creek	25,000	.....	.....
Bear creek	10,000	.....	.....
Muskeg creek	10,000	.....	.....
Sibbald creek	15,000	.....	.....
Spring creek	10,000	.....	.....
Policeman creek	25,000	.....	.....
Spencer creek	15,000	.....	.....
Cold creek	25,000	.....	.....
TRIBUTARIES OF ELBOW RIVER:			
Crawford creek	5,000	.....	.....
Lotts creek	5,000	.....	.....
Mays creek	10,000	.....	.....
Mickel creek	5,000	.....	.....
Pirmez creek	10,000	.....	.....
Rennick creek	5,000	.....	.....
Stringer creek	5,000	.....	.....
Young creek	5,000	.....	.....
TRIBUTARIES OF HIGHWOOD RIVER:			
Etherington creek	.....	.....	19,380
Flat creek	.....	.....	20,000
Pekisko creek	.....	.....	20,000
Sullivan creek	.....	.....	20,000
TOTAL	318,000	419,680	79,380

JASPER

TRIBUTARIES OF ATHABASCA RIVER:			
Moose creek	.....	.....	5,000
Hargwin creek	.....	.....	5,000
Bench creek	.....	.....	15,000
Carrot creek	.....	.....	10,000
Edson creek	.....	.....	10,000
Mary Gregg lake	.....	.....	10,000
Sundance creek	.....	.....	10,000
Hornback creek	.....	.....	12,690
Horse creek	.....	.....	15,000
Unnamed creek	.....	.....	10,000
Wolfson creek	.....	.....	5,000
Reflection lake	.....	.....	20,000
Zanzell lake	.....	.....	10,000
TRIBUTARIES OF PEMBINA RIVER:			
Little Pembina river, township 57	.....	.....	10,000
Little Pembina river, township 46	.....	.....	5,000

TRIBUTARIES OF EMBARRAS RIVER:

Name of Waters	Cutthroat	Loch Leven	Rainbow
Chance creek	.....	.....	5,000
Dummy creek	.....	.....	5,000
Lost creek	.....	.....	5,000
Mitchell creek	.....	.....	5,000
Unnamed creek, township 49	.....	.....	5,000
Unnamed creek, township 48	.....	.....	5,000
TOTAL	.....	.....	182,690

RECAPITULATION

	Cutthroat	Loch Leven	Rainbow
Waterton hatchery	655,000	.....	305,500
Banff hatchery	318,000	419,680	79,380
Jasper hatchery	.....	.....	182,690
TOTALS	973,000	419,680	567,570

Cutthroat trout	973,000
Loch Leven trout	419,680
Rainbow trout	567,570
Total trout distributed from the three hatcheries	1,960,250

To be assured of the necessary supply of trout eggs for the next season's operations, arrangements must be made not later than August of the previous year. For next season's work, through better co-operation, it has been possible to secure a larger amount of eggs at less cost to the Government than heretofore, making it possible to extend all operations. Arrangements have been made for the following eggs to be hatched in the various hatcheries, the resultant fry to be liberated in provincial waters:

Hatchery	Number	Species
Waterton	500,000	Rainbow trout
Waterton	500,000	Cutthroat trout
Banff	100,000	Speckled trout
Banff	500,000	Lock Leven trout
Banff	400,000	Cutthroat trout
Banff	450,000	Rainbow trout
Jasper	200,000	Rainbow trout
TOTAL	2,650,000	

It will be noticed that the allotment for the Jasper hatchery is small. The capacity of this temporary establishment is approximately 300,000, and the above number is all that can be handled in addition to what is required for the Park waters.

Speckled trout fry will be planted for the first time in Cold Lake this coming season, the Government of Saskatchewan and the Cold Lake Board of Trade co-operating to the extent of bearing part of the expense and furnishing free transportation by truck from Edmonton to the lake.

It should be mentioned that a greater interest is taken each year by the members of the various fish and game protective associations and others not connected with these organizations. Many who do not fish themselves are interested in securing fish in the streams for the pleasure of those who do. Much assistance is rendered by these people in supplying conveyances such as cars, teams and pack horses free of cost, enabling the Fisheries' staff to get the fry out in considerably less time and consequently in much better condition.

The season's operations at the Lesser Slave Lake whitefish hatchery were again most satisfactory, although an increase is shown in the percentage of loss in eggs as compared with the previous year. This may be due to several reasons such as the class

or age of fish from which the eggs were taken, the care in taking the eggs, the condition of the trail or road over which they had to be transferred by wagon or truck, approximately 125 miles to the hatchery, the temperature of the weather during transportation or the way in which they were handled by those in charge of the teams and trucks. It is impossible to discover or blame any particular cause unless the actual attendance of an official through all stages of operations were put into effect.

On the first of April there were in the hatchery 122,000,000 eyed eggs, meaning eggs developed to the stage when the eye of the fish is showing and close to hatching. These eggs and resultant fry were disposed of as follows:

April 11th—10,400,000 eyed eggs returned to Whitefish lake, the main source of supply.
April 13th—5,000,000 eggs planted in lake Newell south of Brooks.
April 27th—5,000,000 planted in Buck lake near Caslin.

Total eyed eggs planted, 20,400,000. The balance of the eggs began hatching during the week ending April 23rd, and was finished by May 15th. A total of 101,700,000 fry was liberated in Lesser Slave lake, distribution starting on April 29th. The work was completed on May 20th.

It was intended that a planting of eggs should be made in Calling and Fork lakes, but owing to the late spring the eggs were too far advanced to permit of transfer by the time the ice had sufficiently disappeared to allow successful planting, and later the road was impassable for trucks when the fry were in condition for distribution. The possibility of using aeroplanes was considered, but the cost of transferring fry in this manner was prohibitive. The space required to handle 10,000,000 eggs would only carry 250,000 fry.

Immediately the distribution was completed the equipment as usual was cleaned and put in condition and the temporary staff dismissed. Any necessary repairs were done by the permanent staff during the summer. Some 600 shipping trays were overhauled and re-covered where necessary, part of the foundation of the hatchery, which had given way, was replaced, as well as part of the floor, and all equipment put in readiness for next season's operations. Ice damages to the hatchery wharf were also repaired during the summer.

Preparations for the fall collection of eggs were started on Lesser Slave lake during the last week of September and at Whitefish lake during the week ending October 8th. Camps were established on the north shore of Lesser Slave lake and at Whitefish river and the necessary temporary men were employed. Pound nets and traps were set and arrangements made for the taking of spawn and for its safe transportation to the hatchery.

The collection at each point was successful, as the following table will show:

Total collections, Whitefish lake	146,375,000	
Planted in Whitefish lake	8,000,000	
Planted in Whitefish river	11,600,000	
Planted in Calling lake	13,650,000	
Planted in Lesser Slave lake	1,550,000	
Placed in hatchery	111,575,000	
Loss to March 31st, 1933	15,600,000	
Balance in hatchery at end of year		95,975,000
Egg collection Lesser Slave lake	21,625,000	
Loss to March 31st, 1933	2,615,000	
Balance in hatchery at end of year		19,010,000
TOTAL BALANCE, BOTH SOURCES, AT END OF YEAR		114,985,000

During the season twenty lakes or small bodies of water were examined to ascertain their suitability for fish. Sixteen were found to be barren and four to contain fish-life. Three of the sixteen which were barren were suitable for pike, perch and pickerel whilst two others were only fit for perch. One of the four, in which there already existed perch and pike, will be stocked with whitefish. The remaining three contained perch only, one of them being unsuitable for any other species. The balance of the waters examined was considered unsatisfactory for any fish-life, being in every instance too shallow and in many cases too strong in mineral content.

In addition to the above examinations, the following lakes were stocked for the first time, some by transfer of perch, pickerel and pike from other lakes, the balance with trout fry or whitefish eggs from the hatcheries:

Lessard lake	Perch
Youngers lake	Perch, pike and pickerel
Pats lake	Perch, pike and pickerel
Jackfish lake	Perch, pike and pickerel
Sara lake	Perch, pike and pickerel
God's lake	Perch, pike and pickerel
Romeo lake	Perch and pickerel
Thunder lake	Perch and pickerel
Muir lake	Perch
Lake Newell	Whitefish eyed eggs
Buck lake	Whitefish eyed eggs
Whitefish lake	Whitefish eyed eggs
Calling lake	Fertilized eggs
Zanzell lake	Rainbow fry
Reflection lake	Rainbow fry
Mary Gregg lake	Rainbow fry
Pigeon lake	Loch Leven fry
Dobbs lake	Loch Leven fry
Horseshoe lakes, Nos. 1 and 2	Loch Leven fry
Rainy lake	Loch Leven fry
Beaver lake, No. 1	Loch Leven fry
Wammick lakes, Nos. 1 to 5	Loch Leven fry

A further allotment of Loch Leven fry was also liberated into Wabamun and Birch lakes as a continuation of the experiments to determine if this class of fish would exist with pike, perch and whitefish.

The examination of lakes will be continued and the stocking of those found suitable for fish will be carried out as quickly as possible. The many activities of the small staff of the Fisheries Division make it impossible to detail anyone for this duty alone. The work must be carried out when time will permit, and as the examinations can only be satisfactorily made during the summer months, progress is naturally slow. It might be mentioned, however, that special examinations have been made of some 250 bodies of water within the last few years in addition to those already known to be suitable, and a large percentage of those found adaptable to fish has been stocked.

It is gratifying to report that the restocking of streams and introduction of new species of fish into the waters of Alberta have met with much greater success than anticipated. This is evidenced especially with regard to the introduction of Rainbow trout into the streams in southern Alberta where previously none of this species existed and where excellent catches are now taken with single specimens weighing over four pounds. Many testimonials have been received from anglers verifying these statements.

It is hoped that when conditions improve there will be considerable expansion in this work.

RECORD OF LICENSES ISSUED AND SOLD
FISCAL YEAR, APRIL 1st, 1932 TO MARCH 31st, 1933

Month	Domestic	Fisherman's	Commercial	Angling Permit	Indian Permit	Total
April	5	2	....	....	425	432
May	56	66	1	83	110	316
June	63	23	....	1,144	2	1,232
July	24	14	7	1,703	207	1,955
August	31	25	14	1,037	.....	1,107
September	17	44	3	573	.....	637
October	2	3	....	361	107	473
November	20	37	7	54	9	127
December	176	147	1	8	.....	332
January	46	163	2	....	.....	211
February	12	25	1	....	.....	38
March	6	13	....	....	.....	19
TOTALS	458	562	36	4,963	860	6,879

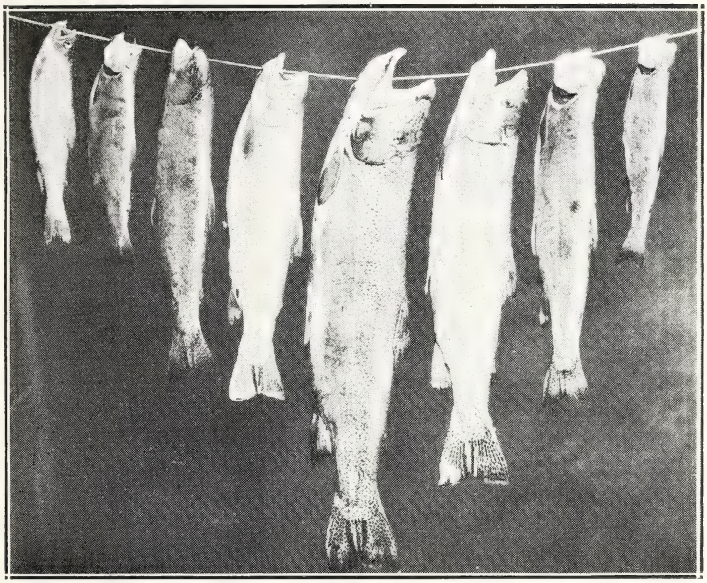
In addition to the above, the Forestry Division sold, on behalf of the Fisheries, Angling Permits 478

GRAND TOTAL 7,357

ITEMIZED REVENUE OBTAINED DURING FISCAL YEAR
APRIL 1st, 1932–MARCH 31st, 1933

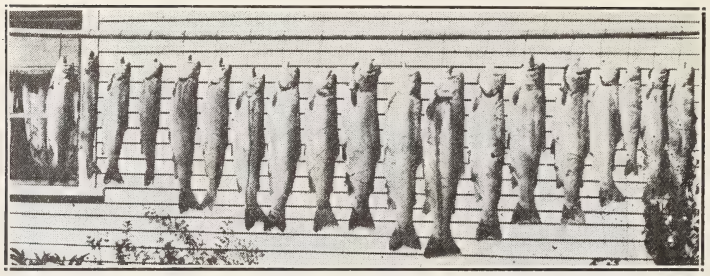
Month	Fisherman's License	Domestic License	Commercial License	Angling Permits	Sales	Sundry	Total
April	$ 10.00	$ 10.00	.....	.....	$ 12.14	.....	$ 32.14
May	330.00	112.00	$ 10.00	$ 166.75	12.00	$ 71.14	701.89
June	115.00	126.00	.....	2,293.50	39.50	16.66	2,590.66
July	70.00	48.00	70.00	3,427.25	2.65	16.66	3,634.56
August	125.00	62.00	140.00	2,099.75	111.75	16.66	2,555.16
September	220.00	34.00	30.00	1,151.00	10.50	16.66	1,462.16
October	15.00	4.00	.....	742.75	10.00	20.31	792.06
November	185.00	40.00	70.00	108.50	4.50	16.66	424.66
December	735.00	352.00	10.00	16.00	100.65	16.66	1,230.31
January	815.00	92.00	20.00	.....	28.55	16.66	972.21
February	125.00	24.00	10.00	.....	36.93	16.66	212.59
March	65.00	12.00	.....	.....	30.04	24.16	131.20
TOTALS	$2,810.00	$916.00	$360.00	$10,005.50	$399.21	$248.89	$14,739.60

Arctic grayling caught in August, 1933, in the Christina river near Conklin, north of Lac la Biche



Rainbow trout caught in September, 1932, in the Bow river near the mouth of the Highwood river. The largest of this group weighed four pounds. This species, non-indigenous to these waters, was previously stocked in this area.

Spawn collecting—cutthroat trout. Spray Lakes.



Rainbow and cutthroat trout—¾ lb. to 2½ lbs.—caught in September, 1933, on the Bow river near Dalemead.

Bird Sanctuaries and Public Shooting Grounds

Upon the transfer of the natural resources to the Province the bird sanctuaries and shooting grounds established under the Migratory Birds Convention Act as nesting and resting places were included. The care of these sanctuaries and shooting grounds was placed with this Division, all permanent officers having, prior to the transfer, been appointed migratory bird officers to assist in the enforcement of the Act in conjunction with the Royal Canadian Mounted Police. No difficulty was experienced in taking over control.

In addition to five small areas privately or municipally owned and declared sanctuaries under the above mentioned Act, there are six large ones directly controlled by this Department, as well as 32 public shooting grounds.

The consensus of opinion points to the creation of sanctuaries for the protection of migratory birds as a general benefit. The water areas in two of these districts, which were established during more favourable seasons, have gone dry, however, and will be of little use until wet seasons occur again and the lakes come back to normal. The other four are in good condition.

These sanctuaries have become resting places for great numbers of ducks, geese and other water fowl during their migration as well as nesting areas and places of protection from the hunter.

A number of metal and wood signs have been made warning against hunting or molesting birds or their nests in any way. These have been placed at various points around the sanctuaries. Lighting fires or cutting timber on any sanctuary is also prohibited, although during the season two small fires were started, and while the total area burned was less than half an acre some difficulty was experienced in controlling them, trenching being necessary.

The sanctuaries are patrolled by the various officers in whose districts they are located to see that laws are observed in the prevention of trespassing or other violation.

The public shooting grounds were established for the purpose of assuring sportsmen of a permanent place to hunt game birds during the open seasons. A great many of the larger of these might also be classed as sanctuaries as the large lakes of which they are chiefly comprised furnish resting places difficult to be reached by the hunter, and the shore vegetation supplies excellent cover for nesting birds in the spring of the year when no shooting is permitted.

Accounting Division

REPORT OF THE ACTING ACCOUNTANT, I. N. McKINNON

A surplus of $289,616.15 on income account was shown for the fiscal year ending March 31, 1933, a decrease of $52,242.91 from the previous year. Revenue showed a decrease of $170,829.91 which was partially offset by a decrease of $118,587.00 in expenditure. Total revenue was $861,477.66 and the total expenditure was $571,861.51. The actual decrease in revenue collections from the previous fiscal year was $18,784.84, the sum of $152,045.07, 1930-31 School Lands collections, having been included in the revenue for the year 1931-32.

Total cash received from all sources amounted to $968,929.06, particulars of which are given in statements "A" and "B".

Land Patents Branch

Homestead Entries.

Homestead entries granted showed a decrease of 929, with a corresponding decrease in revenue. Total number granted was 3,499, covering an area of approximately 559,840 acres. Details of entries granted will be found in statement "N".

Land Sales.

Collections on principal and interest were $7,524.85 and $5,280.87, respectively, there being a decrease of $932.75 in principal and an increase of $2,729.34 in interest collected from the previous year.

Details of collections for this branch are given under statement "D".

Timber and Grazing Branch

Timber.

Receipts from timber operations amounted to $112,485.45 as compared with $150,262.60 for the previous year, a decrease of $37,777.15. Timber products manufactured by holders of license and permit berths were as follows:

Board measure lumber manufactured	45,375,413
Railway ties	189,180
Piling (lineal feet)	560
Laths	3,962,605
Mine timber (lineal feet)	137,464
Logs (lineal feet)	6,168

In addition to the above, 277,631 feet board measure of lumber were manufactured on school lands berths. A considerable amount of lumber was cut under miscellaneous permits, including 77,568 railway ties. Another 25,011 ties were cut under trespass.

Grazing.

Receipts from grazing leases and permits amounted to $37,429.94, a decrease of $4,551.27 from the previous year. Leases in force number 3,708, covering 3,172,839 acres.

Details of collections for this branch will be found under statement "E".

Mining Lands Branch

Coal Leases.

Revenue for the year was $269,820.20, including royalty of $143,800.01, a decrease of $5,267.46 from the previous year. Figures include receipts from coal mined under road allowances.

Royalties on coal mined on sales and Crown leases showed a slight increase from the previous year, though total production mined in the Province showed a decrease of 201,111 tons, 4,681,864 tons being mined this year as against 4,882,975 for the previous year. Leases in force number 517, covering 173,414.61 acres.

Petroleum and Natural Gas.

Collections on both rental and royalty again showed decreases. Rentals collected were $42,219.51 as against $57,711.87 for the previous year, a decrease of $15,452.36. Royalty collected was $73,182.96 as compared with $106,103.05 for the previous year. This is in line with a decrease in naphtha and oil production on Crown lands of 299,496 barrels. Total production for this year was 486,221 barrels as against 785,717 barrels for the previous year. Leases in force number 11,149, covering an acreage of 1,680,688.

Details of revenue collected by this branch are given under statement "F".

School Lands Branch

No sales of school lands by public auction were held during the past fiscal year. Collections on sales indicate a substantial increase over the previous year. While payments on account of principal show a decrease of $3,882.04, interest collections reveal an increase of $104,024.21. Receipts on account of principal were $40,065.81 and interest $162,875.81.

Total school lands receipts for the year amounted to $262,891.94 as compared with $164,036.80 for the previous year. Complete details of receipts are given in statement "G".

The Alberta School Lands Sales Trust Account as at March 31st, 1933, amounted to $16,734,235.74, particulars of which will be found in statement "H".

Arrears of interest on sales as at March 31st, 1933, amounted to $2,237,264.92 as compared with $2,228,014.55 as at March 31st, 1932, details of which are given in statement "I".

The Department, during the past year, made a careful survey of all sales accounts which were in arrears. It was decided to give purchasers the opportunity of giving up their sales contracts and retaining their land under a cultivation permit following which a lease would be granted, cultivation leases and permits to be obtained at an annual rental of 4c per acre on the uncultivated area plus a share of the crop, the Department refunding to the lessee taxes paid on the cultivated area. Purchasers in arrears retaining their contracts were required to give the Department a crop lease, resulting in the large increase in interest collections.

Forestry Branch

Collections of revenue from the various Forest Reserves amounted to $32,762.33, a decrease of $10,766.53 from the previous year. Complete details of receipts will be found in statement "J".

Fisheries Branch

Collections amounted to $14,739.60 as compared with $18,861.22 for the previous year, a decrease of $4,121.62. Details of receipts are given in statement "K".

Mines Act Branch

Receipts for the year amounted to $6,968.37, details of which will be found in statement "L".

INDEX TO STATEMENTS

A.—Statement of Cash Receipts by Branches.
B.—Statement of Cash Receipts from all sources.
C.—Statement of Cash Receipts by Agencies.
D.—Statement of Cash Receipts, Land Patents Branch.
E.—Statement of Cash Receipts, Timber and Grazing Branch.
F.—Statement of Cash Receipts, Mining Lands Branch.
G.—Statement of Cash Receipts, School Lands Branch.
H.—Statement of School Lands Trust Balance Sheet.
I.—Statement of Alberta School Lands Sales Revenue Account.
J.—Statement of Cash Receipts, Forestry Service.
K.—Statement of Cash Receipts, Fisheries Branch.
L.—Statement of Cash Receipts, Administration of The Mines Act Branch.
M.—Statement of Collections on Tax Recovery Lands.
N.—Statement of Homestead Entries Granted.
O.—Statement of Statistical Summary of Nationalities.

STATEMENT A

STATEMENT OF CASH RECEIPTS BY BRANCHES

FOR PERIOD APRIL 1, 1932 TO MARCH 31, 1933

Land Patents Branch		$ 69,729.30
Timber and Grazing Branch		154,538.91
Mining Lands Branch		390,646.76
School Lands Branch		262,891.94
Forestry Branch		32,762.33
Fisheries Branch		14,739.60
Petroleum and Natural Gas Division		430.64
Administration of the Mines Act Branch		6,968.37
Administration Revenue (Miscellaneous Fees)		213.00
Tax Recovery Branch		12,215.05
Total Cash Receipts Allocated		$945,135.90
Unapplied receipts and monies subject to refund, carried forward from previous year	$36,319.67	
Less Suspense applied and refunded	12,526.51	
		23,793.16
TOTAL CASH RECEIPTS		$968,929.06

STATEMENT B

STATEMENT OF CASH RECEIPTS FROM ALL SOURCES

FROM APRIL 1, 1932 TO MARCH 31, 1933

	Gross Receipts	Refunds	Net Revenue
INCOME ACCOUNT:			
Homestead Fees	$ 34,680.00	$ 30.00	$ 34,650.00
Improvement Collection Fees	2,418.55	.....	2,418.55
Unclaimed Improvements	5,809.31	.....	5,809.31
Cancellation Fees	2,750.00	10.00	2,740.00
Filing Authority Fees	2,572.00	6.00	2,566.00
General Sales: Interest	5,280.87	.....	5,280.87
Cultivation Fees, Rentals, etc.	457.31	9.10	448.21
Surface Rentals	2,190.34	.....	2,190.34
Canmore Rental Account	1,276.01	.....	1,276.01
Land Patents Sundry	2,220.84	5.75	2,215.09
Fur Farm Fees, Rentals, etc.	334.61	25.00	309.61
Timber Permits, Fees, Dues, etc.	128,354.76	4,647.40	123,707.36
Grazing Fees, Rentals, etc.	49,528.93	549.28	48,979.65
Hay Permits, Fees, Dues, etc.	2,734.86	35.00	2,699.86
Timber and Grazing Miscellaneous	2,818.01	12.50	2,805.51
Mines Act Sundry Revenue	4,840.16	93.00	4,747.16
Coal Fees, Rentals, etc.	126,020.19	269.70	125,750.49
Coal Mining Royalty	143,800.01	.....	143,800.01
Petroleum and Natural Gas Fees, Rentals, etc.	42,259.51	226.81	42,032.70
Petroleum and Natural Gas Drilling Permits	85.00	.....	85.00
Petroleum and Natural Gas Royalty	73,182.96	.....	73,182.96
Quarrying Lease Fees and Rentals	1,032.22	.....	1,032.22
Mining Lands Sundry Revenue	1,223.52	40.68	1,182.84
Fishing Licenses	4,086.00	.....	4,086.00
Angling Permits	11,093.00	.....	11,093.00
Fisheries Sundry Revenue	648.10	.....	648.10
Administration Sundry Revenue	202.08	.....	202.08
Reimbursement of Salaries and Expenses	210.92	.....	210.92
School Lands Sales Interest	162,875.81	49.13	162,826.68
School Lands Miscellaneous	52,748.32	247.19	52,501.13
TOTAL INCOME ACCOUNT	$867,734.20	$ 6,256.54	$861,477.66
CAPITAL ACCOUNT:			
Lands Sales: Principal	7,524.85	2.00	7,522.85
TOTAL INCOME AND CAPITAL ACCOUNTS	$875,259.05	$ 6,258.54	$869,000.51
UNAPPLIED RECEIPTS CARRIED FORWARD: (Subject to Refund)			
Improvements	18,140.42	8,321.82	9,818.60
Suspense	9,555.94	.....	9,555.94
School Lands Cultivation Crop Shares	5,810.60	48.98	5,761.62
Land Patents Cultivation Lease Fees	240.00	5.00	235.00
School Lands Cultivation Lease Fees	1,391.40	25.00	1,366.40
	$910,397.41	$ 14,659.34	$895,738.07
TRUST ACCOUNTS:			
School Lands Trust Fund	40,065.81		
Petroleum and Natural Gas Cash Bonds	5,402.20		
Homesteaders' Trust Monies	848.59		
Tax Recovery Lands Trust Account	12,215.05		
TOTAL CASH RECEIPTS	$968,929.06		

STATEMENT C

STATEMENT OF CASH RECEIPTS BY AGENCIES

APRIL 1, 1932 TO MARCH 31, 1933

	Land Patents Branch	Timber and Grazing Branch	Mining Lands Branch	School Lands Branch	Total
Edmonton	$ 38,862.49	$102,247.37	$116,341.49	$107,422.73	$364,874.08
Calgary	5,717.91	20,329.28	210,793.57	106,032.37	342,873.13
Grande Prairie	7,764.04	4,024.06	445.70	7,117.19	19,350.99
Lethbridge	5,196.28	23,363.40	62,846.23	36,253.82	127,659.73
Peace River	12,188.58	4,574.80	219.77	6,065.66	23,048.81
Administration Office	.....	.....	.....	.17	.17
	$ 69,729.30	$154,538.91	$390,646.76	$262,891.94	$877,806.91

N.B.—Monies which were paid direct to Administration Office have been allocated to the Agency concerned.

STATEMENT D

LAND PATENTS BRANCH
STATEMENT OF CASH RECEIPTS
APRIL 1, 1932 TO MARCH 31, 1933

	Edmonton	Calgary	Grande Prairie	Lethbridge	Peace River	Total
Homestead Fees	$23,230.00	$ 20.00	$ 4,640.00	.....	$ 6,790.00	$34,680.00
Improvements	6,187.06	127.50	1,987.75	557.15	3,271.60	12,131.06
Cancellation Fees	1,804.00	.....	392.00	.....	554.00	2,750.00
Filing Authority Fees	1,584.00	104.00	338.00	42.00	504.00	2,572.00
General Sales: Principal	4,367.39	814.36	217.37	1,776.73	349.00	7,524.85
General Sales: Interest	323.70	2,262.86	43.57	2,329.35	321.39	5,280.87
Cultivation Fees, Rentals, etc.	20.55	450.86	.....	212.40	13.50	697.31
Surface Rentals	2.00	77.06	.....	140.00	.....	219.06
Canmore Rental Account	.....	1,276.01	.....	.....	.....	1,276.01
Land Patents Miscellaneous	687.68	358.31	120.35	128.65	119.95	1,414.94
Homesteaders' Trust Monies	580.56	201.95	.....	10.00	56.08	848.59
Fur Farm Fees and Rentals	75.55	25.00	25.00	.....	209.06	334.61
	$38,862.49	$ 5,717.91	$ 7,764.04	$ 5,196.28	$12,188.58	$69,729.30

N.B.—Monies which were paid direct to Administration Office have been allocated to the Agency concerned.

STATEMENT E

TIMBER AND GRAZING BRANCH
STATEMENT OF CASH RECEIPTS
APRIL 1, 1932 TO MARCH 31, 1933

	Edmonton	Calgary	Grande Prairie	Lethbridge	Peace River	Total
Timber: Fees, Dues, Royalty, etc.	$ 97,602.67	$ 8,584.21	$ 3,393.57	$ 15.00	$ 2,890.00	$112,485.45
Grazing: Fees, Rentals, etc.	2,183.84	10,776.91	314.99	23,042.65	1,111.55	37,429.94
Hay: Fees, Dues, etc.	1,313.73	309.13	303.00	32.75	568.25	2,526.86
Timber and Grazing Miscellaneous	1,147.13	659.03	12.50	273.00	5.00	2,096.66
	$102,247.37	$20,329.28	$ 4,024.06	$23,363.40	$ 4,574.80	$154,538.91

N.B.—Monies which were paid direct to Administration Office have been allocated to the Agency concerned.

MINING LANDS BRANCH

STATEMENT F

STATEMENT OF CASH RECEIPTS

APRIL 1, 1932 TO MARCH 31, 1933

	Edmonton	Calgary	Grande Prairie	Lethbridge	Peace River	Total
Coal Fees, Rentals, etc.	$ 53,272.14	$ 58,186.59	$ 295.90	$13,669.56	$ 46.00	$125,470.19
Coal Royalty	55,264.32	54,763.91	119.80	32,043.72	30.05	142,221.80
Petroleum and Natural Gas: Fees, Rentals, etc...	6,837.43	23,129.79	.....	12,111.07	141.22	42,219.51
Petroleum and Natural Gas: Royalties.....	4.75	71,479.23	.....	1,698.98	.....	73,182.96
Petroleum and Natural Gas: Cash Bonds	.....	2,304.00	.....	3,098.20	.....	5,402.20
Quarrying Fees, Rentals, etc.	248.77	689.90	.....	93.55	.....	1,032.22
Miscellaneous	714.08	240.15	30.00	131.15	2.50	1,117.88
	$116,341.49	$210,793.57	$ 445.70	$62,846.23	$ 219.77	$390,646.76

N.B.—Monies which were paid direct to Administration Office have been allocated to the Agency concerned.

SCHOOL LANDS BRANCH

STATEMENT G

STATEMENT OF CASH RECEIPTS

APRIL 1, 1932 TO MARCH 31, 1933

	Edmonton	Calgary	Grande Prairie	Lethbridge	Peace River	Administration Office	Total
Sales: Principal	$ 18,207.80	$ 18,049.30	$ 594.32	$ 2,329.91	$ 884.47	$	$ 40,065.81
Sales: Interest	71,695.41	65,696.87	4,884.90	16,121.80	4,476.83	.....	162,875.81
Cultivation Fees, Rentals, etc.....	4,626.77	4,722.46	47.00	1,091.60	71.60	.....	10,559.43
Surface Rentals	.....	.....	.....	19.98	.....	.....	19.98
License of Occupation and Special Leases	1.00	82.69	.....	5.00	.....	.....	88.69
Timber Fees, Dues, Royalties, etc.	6,286.21	302.05	1,156.52	13.75	44.56	.....	7,803.09
Grazing Fees, Rentals, etc.	4,695.52	10,086.17	347.95	9,346.63	443.19	.....	24,919.46
Hay Fees, Dues, etc.	540.25	97.00	61.50	15.50	145.00	.....	859.25
Coal Fees, Rentals, etc.	320.55	3,452.24	.....	2,337.78	.....	.....	6,110.57
Coal Mining Royalties	360.30	1,049.49	.....	3,561.99	.....	.....	4,971.78
Petroleum and Natural Gas: Fees, Rentals, etc.	372.38	2,116.68	.....	1,229.88	.....	.....	3,718.94
Royalties	11.04	242.42	.....	.....	.....	.....	253.46
Registration and Assignment Fees	285.00	135.00	25.00	83.00	.....	.....	528.00
Miscellaneous	20.50	.....	.....	97.00	.....	.17	117.67
	$107,422.73	$106,032.37	$ 7,117.19	$36,253.82	$ 6,065.66	$ .17	$262,891.94

N.B.—Monies which were paid direct to Administration Office have been allocated to the Agency concerned.

STATEMENT H

ALBERTA SCHOOL LANDS TRUST FUND
BALANCE SHEET—MARCH 31, 1933

ASSETS

Cash in Bank		$ 4,223.59	
Investments:			
Dominion of Canada 5% Debentures	$9,564,569.20		
Other Debentures	112,809.66		
		9,677,378.86	
Accrued Interest		357.14	
Accounts Receivable:			
Undue Principal	$4,580,244.78		
Arrears Principal	2,472,040.41		
		7,052,285.19	
			$16,734,244.78

LIABILITIES

Alberta School Lands Trust Account	$16,734,235.74	
Suspense	9.04	
		$16,734,244.78

STATEMENT I

ALBERTA SCHOOL LAND SALES
REVENUE ACCOUNT

FOR THE PERIOD APRIL 1, 1932 TO MARCH 31, 1933

Arrears interest as at March 31, 1932	$2,228,014.55	
Interest charged during period	668,971.16	
Cash Collections during period		$ 162,826.68
Interest on Cancelled sales written off		496,894.11
Arrears interest as at March 31, 1933		2,237,264.92
	$2,896,985.71	$2,896,985.71

STATEMENT J

FORESTRY SERVICE
STATEMENT OF CASH RECEIPTS

FROM APRIL 1, 1932 TO MARCH 31, 1933

LAND PATENTS BRANCH:	
Surface Rentals	$ 1,971.28
Miscellaneous Use Permits	805.90
TIMBER AND GRAZING BRANCH:	
Timber Fees, Dues, Royalty, etc.	15,869.31
Grazing Fees, Rentals, etc.	12,098.99
Hay Fees, Dues, etc.	208.00
Miscellaneous	721.35
FISHERIES BRANCH:	
Angling Permits	1,087.50
	$32,762.33

STATEMENT K

FISHERIES BRANCH
STATEMENT OF CASH RECEIPTS

FROM APRIL 1, 1932 TO MARCH 31, 1933

Angling Permits	$10,005.50
Fishing Licenses	4,086.00
Sundry	648.10
	$14,739.60

STATEMENT L

ADMINISTRATION OF THE MINES ACT BRANCH
STATEMENT OF CASH RECEIPTS

FROM APRIL 1, 1932 TO MARCH 31, 1933

Certificate Fees	$ 1,263.50
Sale of Report Books	837.66
Coal Sales Act, Registration Fees	40.00
Coal Leases (Road Allowance) Rental	550.00
Coal Leases (Road Allowance) Royalty	1,578.21
Examination Fees	1,438.00
Miscellaneous	1,261.00
	$6,968.37

STATEMENT M

STATEMENT OF COLLECTIONS ON TAX RECOVERY LANDS

FROM APRIL 1, 1932 TO MARCH 31, 1933

Special Leases	$ 1.00
Grazing Rentals, etc.	3,015.32
Grazing Permits	3,393.06
Cultivation Lease Fees	521.00
Cultivation Rentals	913.18
Grazing Bonus	7.52
Hay Permits	49.00
Improvements	789.05
Cultivation Crop Shares	3,437.98
Tax Recovery Sundry Revenue	26.00
Miscellaneous Rentals	31.94
Sales Principal	30.00
	$12,215.05

STATEMENT N

HOMESTEAD ENTRIES GRANTED

FROM APRIL 1, 1932 TO MARCH 31, 1933

	Homesteads	Second Homesteads	Soldier Grants	TOTAL	Entries to Women
Edmonton Land Agency	2,043	257	23	2,323	569
Calgary Land Agency	2	.....	.....	2	1
Lethbridge Land Agency	.....	.....	.....	.....	.....
Grande Prairie Land Agency..	414	48	2	464	157
Peace River Land Agency	653	53	4	710	249
	3,112	358	29	3,499	976

Had Previous Entry—480.

The Homestead Revenue does not agree with the total entries granted due to Peace River Homestead Revenue for the period March 16th to 31st, amounting to $310.00, not being received at Administration Office in time to be included in this year's revenue.

STATEMENT O

STATISTICAL SUMMARY OF NATIONALITIES

FROM APRIL 1, 1932 TO MARCH 31, 1933

Country of Origin	No. of Entries	No. of Souls
Canada	1,237	3,074
England	179	588
Scotland	69	213
Ireland	29	82
Wales	12	49
United States	456	1,627
Australia	2	5
Austria	75	309
Belgium	4	7
British Guiana	1	5
Czechoslovakia	69	214
Denmark	34	55
East Indies	1	2
Esthonia	1	3
Finland	5	11
France	8	32
Galicia	1	6
Germany	84	192
Holland	15	44
Hungary	33	123
India	1	5
Italy	7	22
Jugo-Slavia	9	20
Lithuania	15	19
Newfoundland	4	9
New Zealand	2	9
Norway	71	204
Poland	325	1,027
Roumania	36	137
Russia	56	204
Sweden	65	158
Spain	1	3
Switzerland	13	31
Syria	1	5
Ukrania	191	653
	3,112	9,147

ANNUAL REPORT

OF THE

Department of Lands and Mines

OF THE

PROVINCE OF ALBERTA

FOR THE

Fiscal Year ended March 31st, 1934

PUBLISHED BY ORDER OF THE LEGISLATIVE ASSEMBLY

EDMONTON:
PRINTED BY W. D. McLEAN, KING'S PRINTER
1935

To the Honourable W. L. Walsh,
Lieutenant-Governor of the Province of Alberta.

SIR:

I have the honour to submit herewith the report of the Department of Lands and Mines for the fiscal year ended March 31st, 1934.

I have the honour to be, Sir,

Your obedient servant,

HUGH W. ALLEN,
Minister of Lands and Mines.

EDMONTON, December 14th, 1934.

TABLE OF CONTENTS

Page

REPORT OF THE DEPUTY MINISTER 9

OBITUARY—Albert Helmer 27

I—PROVINCIAL LANDS ADMINISTRATION

Report of the Edmonton Land Agency 28
Calgary Land Agency 30
Lethbridge Land Agency 32
Peace River Land Agency 33

II—TECHNICAL DIVISION

Report of the Technical Division 35

III—PETROLEUM AND NATURAL GAS

Report of the Director of Petroleum and Natural Gas 39

IV—FORESTRY

Report of the Director of Forestry 57

V—FISHERIES

Report of the Director of Fisheries 84

VI—INSPECTION OF REVENUE

Report of the Inspector of Revenue 100

VII—ACCOUNTING DIVISION

Report of the Acting Accountant 103

CHIEF OFFICERS,
DEPARTMENT OF LANDS AND MINES
March 31st, 1934

Honourable R. G. Reid	*Minister of Lands and Mines*
John Harvie	*Deputy Minister of Lands and Mines*
T. C. Rankine	*Departmental Solicitor*
D. H. Boles	*Director of Lands*
W. Calder	*Director of Petroleum and Natural Gas*
T. F. Blefgen	*Director of Forestry*
J. A. Hutchison	*Assistant Director of Forestry*
R. T. Rodd	*Director of Fisheries*
A. A. Millar	*Chief Inspector, The Coal-mines Regulation Act*
I. N. McKinnon	*Chief Accountant*
J. W. Stafford	*Agent, Edmonton Land Agency*
M. Gossip	*Agent, Calgary Land Agency*
R. Cruickshank	*Agent, Lethbridge Land Agency*
J. J. E. Clarke	*Agent, Peace River Land Agency*
R. J. Dean	*Inspector of Revenue*
F. W. Neilson	*Chief Timber Inspector*
T. W. Dalkin	*Technical Division*
A. Helmer	*Supervisor of Grazing*
J. L. Irwin	*Statistician*

REPORT

OF THE

Department of Lands and Mines

1933-34

Honourable R. G. Reid,
Minister of Lands and Mines,
Edmonton.

SIR:

I have the honour to submit the fourth annual report of the Department of Lands and Mines for the fiscal year ended March 31st, 1934.

It is gratifying to be able to point at last to a noticeable and really favourable change in the economic situation with its consequent effect on the business of this Department during the period under review.

Surplus on income account shows an increase of $185,072.04 over last year's figures. Under this heading is disclosed also an increase in revenue of $75,618.14, a decrease in expenditure of $109,453.90 and a departmental surplus for the year of $474,688.19.

Other improvements are apparent in the general situation and the following increases are also reported:—petroleum production, 270,391 barrels; natural gas consumption, 284,993,000 cubic feet; timber revenue, net increase, $30,111.42; commercial fish production, 911,142 pounds with value of this increase to fishermen, $36,684.70 and value as marketed, $69,946.73.

Coal production shows little change from the preceding period, a small decrease of 155,246 tons being reported for the calendar year, 1934.

PROVINCIAL LANDS ADMINISTRATION

School Lands Purchases.—A relief measure introduced during this period for the benefit of school lands-purchasers, was the crediting of an extra dollar for every dollar paid on arrears or current interest. This arrangement, made retroactive as from September 1st, 1932, is to continue in force until March 31st, 1935.

Another feature of considerable importance to the purchasers of school lands became effective as a result of an amendment to The Provincial Lands Act, 1933, Cap. 24, Sec. 44*a*. Under this enactment a purchaser might surrender part of the land under agreement of sale and reduce the liability of the purchase price under such agreement to the amount payable on the land retained. Moneys paid under the original agreement of sale, exclusive of interest, are to be accepted as having been paid on the liability so reduced, providing, however, that no payments made prior to the new agreement are to be refunded.

Closing of Grande Prairie Land Agency.—On March 31st, 1933, the office of the Grande Prairie Land Agency was closed, the staff and office impedimenta being transferred to Peace River, from which centre the two areas for the time being are to be jointly administered. The move was decided upon partly as an economic measure due to the times and partly with a view to

centralization of the two districts from one office, a sub-agency being established to replace the former agency at Grande Prairie.

Opening of Restricted Area.—The general area south of township 42, belonging to the Calgary and Lethbridge Land Agency districts which was restricted from settlement in September, 1931, was opened again on May 1st, 1933.

This area, with the exception of those lands in the Calgary Agency district lying within the boundaries as designated in the amended schedule, Order in Council No. 308/33, April 22nd, 1933, was opened for homestead, second homestead or soldier grant to any applicants eligible for same providing that they were in permanent residence and conducting farming operations upon farms of not less than eighty acres situated within a distance of nine miles in a direct line from the land for which application was made. In addition to this, holders of pre-emptions were given the privilege of abandoning these lands and securing them once again as second homesteads.

Trend of Settlement.—An increase of 207 in the total of first and second homestead entries and soldier grants is shown for the year which was due principally to the reopening of the formerly restricted areas in the southern portion of the Province.

This increase was not, however, the result of any new settlement. Much of it, the majority in fact, merely represented a change in the status under which Crown lands in this particular area were held from the viewpoint of homesteads being secured by permanent residents within the nine-mile area or the conversion of pre-emptions into second homesteads.

A noticeable decrease is shown in the total entries granted in the northern part of the Province amounting to 126 in the Edmonton Agency district and 514 in Peace River. The latter was due very largely to hard times and lack of capital, settlers wishing to locate in the available areas in the north being often unable to finance the general question of moving their families, goods and chattels to distant points.

The bulk of settlement for the year was in the country west of Edmonton and south of Evansburg in Rocky Rapids, Drayton Valley and Buck Lake areas down to the southern boundary of the Edmonton Land Agency district in township 43.

Homestead Entries.—First and second homestead entries and soldier grants during the year totalled 3,706 covering an area of approximately 592,960 acres as compared with 3,499, representing an approximate acreage of 559,840 for the previous fiscal year. The total of 3,706 for this period comprises 2,984 first homesteads, 696 second homesteads and 26 soldier grants. Homestead entries granted to women totalled 1,011, which figure is included in the first homestead total of 2,984. Persons holding previous entries, cancelled in favour of the present ones held which are included in this first homestead total of 2,984, numbered 462.

The total of 2,984 persons to whom first homestead entries were granted, added to their relatives and dependents, comprised a grant total of 9,550 souls. Of these, 3,303 (34.59%) were Canadians, 1,216 (12.73%) were from Great Britain and British Dominions, 1,611 (16.86%) from the United States and 3,420 (35.82%) from other countries, chiefly European.

In comparing this year's total of 2,984 first homestead entries with last year's of 3,112, a decrease of 128 is shown. On the other hand, this year's total of 9,550 souls, comprising persons making first homestead entries, together with their relatives and dependents, reveals an increase of 403 in comparison with last year's total of 9,147.

Comparative statements showing totals of homestead entries and soldier grants together with statistical summary of nationalities from 1931 to 1934 are given herewith. Fuller details of this information appear in the land agents' and chief accountant's section of this report and in similar sections of the annual reports for preceding years.

HOMESTEAD ENTRIES GRANTED

Fiscal Year	Homesteads	Second Homesteads	Soldier Grants	Total	Homesteads Granted to Women
*1930-31	3,042	557	149	3,748	.....
1931-32	3,876	522	30	4,428	1,521
1932-33	3,112	358	29	3,499	976
1933-34	2,984	696	26	3,706	1,011
Totals	13,014	2,133	234	15,381	3,508
	Decrease	Increase	Decrease	Increase	Increase
This year in comparison with last	128	338	3	207	35

*Six months to March 31.

NOTE.—Homesteads for women were not available until 1932. The total number as shown in the above statement is included in the first homestead total.

HOMESTEAD ENTRIES—STATISTICAL SUMMARY OF NATIONALITIES

Fiscal Year	Canada		Great Britain and British Dominions		United States		Other Countries		Total	
	Number of Homestead Entries	Number of Souls	Number of Homestead Entries	Number of Souls	Number of Homestead Entries	Number of Souls	Number of Homestead Entries	Number of Souls	Number of Homestead Entries	Number of Souls
*1930-31	1,088	2,184 (30.89%)	261	620 (8.77%)	386	948 (13.41%)	1,307	3,317 (46.93%)	3,042	7,069
1931-32	1,649	4,559 (37.46%)	393	1,238 (10.18%)	733	2,664 (21.89%)	1,101	3,708 (30.47%)	3,876	12,169
1932-33	1,237	3,074 (33.60%)	300	967 (10.58%)	456	1,627 (17.78%)	1,119	3,479 (38.04%)	3,112	9,147
1933-34	1,208	3,303 (34.59%)	345	1,216 (12.73%)	444	1,611 (16.86%)	987	3,420 (35.82%)	2,984	9,550
Totals	5,182	13,120 (34.60%)	1,299	4,041 (10.66%)	2,019	6,850 (18.04%)	4,514	13,924 (36.70%)	13,014	37,935

*Six months to March 31.

THIS YEAR IN COMPARISON WITH LAST

Decrease	Increase	Increase	Increase	Decrease	Decrease	Decrease	Decrease	Decrease	Increase
29	229	45	249	12	16	132	59	128	403

NOTE: Number of souls includes persons to whom first homestead entries were granted together with their relatives and dependents.

Work of the Technical Division

Records.—The transfer of information from Ottawa since the publication of the last annual report has progressed favourably and details covering such information have been set up in the new plan records of the Technical Division.

Records received dealing with minerals are now completed and a start has been made to check fiats for patent with a view to plotting all underrights which previously had been alienated. Until this search is finished this particular phase of the work will not be complete.

A new set of plan records has been arranged showing all licensed and permit timber berths by township plan. Work has also been started on forestry records which will show by township the boundaries of reserves and forest service improvements as they are made from time to time.

Grazing records are now complete and show all grazing leases in the Province by township diagram. A duplicate set of these records has been forwarded to the Supervisor of Grazing at Calgary together with a numerical index to the ranches.

With reference to stock watering reserves, orders in council during this period were passed releasing 6,790.79 acres, more or less, for other purposes, as these areas were no longer needed in this connection.

Sets of records showing an index to the surveyed roadways affecting Crown lands have been made and 105 plans of surveys of new road diversions affecting 433 parcels of land were recorded. Regarding the cancellations of numerous roadways during the year, the areas in each case were added to the existing sale, entry or lease.

A complete check is now being made with regard to the many transmission lines located upon government lands, permission for which had never been obtained from the Dominion Government and considerable correspondence in this connection has been entered into with power and utility companies with a view to the establishment of legal rights.

Issue of Notifications.—The number of notifications issued and amount of acreage covered thereby since October 1st, 1930, date of the natural resources transfer from Dominion to Provincial Government control, are as follows:—

NOTIFICATIONS ISSUED

Fiscal Year	Number of Notifications	Area, Acres
*1930-31	23	3,019.71
1931-32	784	111,424.478
1932-33	1,260	178,887.233
1933-34	1,106	165,224.553
Totals	3,173	458,555.974
Decreases this year in comparison with last	154	13,662.680

*Six months to March 31.

With regard to notifications covered by sales, an area of 2,562.13 acres, more or less, was patented to the different drainage and irrigation districts and certain exchanges of land were also effected in the Tilley East area.

With regard to certain lands held by the Soldier Settlement Board, 34 patents covering an area of 5,178.34 acres were, in accordance with the agreement dealing with the transfer of the natural resources, issued direct by the Dominion Government.

Certain tracts of land comprising a total of 8,678.32 acres held by the Director of Soldier Settlement as agent of the Crown in the right of the Dominion, were, on the other hand, transferred to the Province after the lands in question had been offered for sale by public tender without results.

An area covering 8,750.54 acres, more or less, made available for administration through tax recovery proceedings, was transferred to this Department by the Department of Municipal Affairs.

Statistical Maps.—The Technical Division has now a complete stock of township plans. During the year a total of 37,200 was received from the Department of the Interior for the records in addition to maps of various descriptions.

A very complete supply of maps is now available for which there is an increasingly steady demand which includes continual requests from distant points from applicants interested in homesteading, prospecting, mining and hunting.

Soil Surveys.—The preparation of a comprehensive set of soil survey records has now been prepared which contains reports of surveys and maps made by both the Dominion Government and the University of Alberta.

The different classifications of soils are shown by colour in a large map of the Province which is altered from time to time to incorporate into the system new surveys as they are made. With the inclusion of this information amongst the records the necessity of actual inspection upon the ground becomes in many cases unnecessary. Homesteaders and the public generally are frequently availing themselves of this particular service.

Grazing

The number of applications for grazing lands received, the number reported on and miles travelled to make investigations and inspections for the fiscal year ended March 31, 1934, were as follows:

Applications received	270
Renewal applications received	123
Total	393
Applications reported on	227
Renewal applications reported on	83
Special Reports	72
Total	383

MILEAGE

Automobile	9,903
Train	2,997
Total	12,900

APPLICATIONS AND RENEWALS FOR GRAZING LANDS

Fiscal Year	
1931-32	741
1932-33	259
1933-34	393
Total	1,393
Increase this year in comparison with last	134

Petroleum and Natural Gas

Extended and New Development.—The proven area in the southern portion of the Turner Valley field started early in the summer on a programme of extended development, activity being confined principally to section 28, township 18, range 2, west of the fifth meridian. Preliminary construction was also started at two locations in the foothills in which both the geological and topographical indications give promise of new producing areas.

Aldersyde Area.—The Ranchmen's Gas and Oil Company's well No. 1 at Aldersyde after a lengthy period of drilling appears to be nearing production, the depth at March 31st, 1934, being 6,260 feet where encouraging indications of gas were encountered.

The potentialities of this area have for several years been favourably considered by the divisional staff. Confirming these views, a memorandum and sectional plan prepared by Mr. Owen of the divisional staff during 1932, but not made public until now, are attached as Exhibits "D" and "E" to the Petroleum and Natural Gas Division's section of this report.

Natural Gas Consumption.—As natural gas consumption was maintained during this period at approximately the same quantity as in previous years and as no new development has arisen to discover reserves of gas, it is presumed that gas well operators are satisfied that the present wells contain ample reserves for all requirements.

NATURAL GAS CONSUMPTION

Fiscal Year	Cubic Feet
*1929-30	23,228,637,000
†1930-31	23,312,006,000
1931-32	18,327,139,000
1932-33	16,061,383,000
1933-34	16,346,376,000
Total	97,275,541,000
Increase this year in comparison with last	284,993,000

*Under federal administration.
†Under federal administration to October 1st, 1930, and under provincial following that date.

Increase in Petroleum Production.—An increase of more than 24% over last year's total production of all classes of oil is reported for this year, due principally to the completion of four new wells in Turner Valley and also to the greater recovery of naphtha as a result of operations of the newly erected absorption plant.

PETROLEUM PRODUCTION

Fiscal Year	Naphtha (Barrels)	Light Crude Oil (Barrels)	Heavy Crude Oil (Barrels)	Total (Barrels)
*1930-31	1,496,457	104,183	13,562	1,614,202
1931-32	1,143,875	86,000	16,453	1,246,328
1932-33	810,958	52,238	7,886	871,082
1933-34	1,082,816	54,048	4,609	1,141,473
Totals	4,534,106	296,469	42,510	4,873,085
	Increase	Increase	Decrease	Increase
This year in comparison with last	271,858	1,810	3,277	270,391

*Under federal administration to October 1st, 1930, and under provincial following that date.

Absorption Plant.—The absorption plant, erected by the Royalite Company during the year and designed for a daily through-put of seventy-five to eighty million cubic feet of gas, has provided a most successful enterprise. So successful indeed that extensions have already been added to it and the rumour that a second plant of similar capacity is to be erected in the south end of Turner Valley is given general credence.

Main features of the general plant which should prove of interest, are as follows:

(1) Four standard separators to remove all possible naphtha before the gas enters the absorption towers;

(2) Three absorption towers, five feet by fifty feet high.

(3) Four separators to remove any absorption oil that may pass through with the stripped gas from the absorption towers;

(4) Rectifying plant for removing naphtha from the absorption oil and regenerating the latter for re-use.

The only mechanical appliances in the building are sundry pumps used in the rectifying plant for pumping the recovered naphtha and the regenerated absorption oil into tanks. The gas is processed entirely without mechanical aid,

the designers, it being assumed, relying on well pressures remaining sufficiently high for some time to come to propel the gas through the absorption towers, fractionating plant and scrubbers and thence to points of consumption.

Testing the Wells.—The testing of wells in Turner Valley, initiated in 1931 and carried on by the Turner Valley Gas Conservation Board in 1932, was continued by the divisional staff during the period of this report.

As all wells could not be tested simultaneously the Valley was sub-divided into areas to permit the work being expeditiously carried out.

Well Pressures.—The tests showed a marked decline in pressure in all the older producing wells of the Valley, a fact which would seem to threaten a still further reduction of such pressure if excessive withdrawals of gas continued to be in evidence and revealing the possibility of the installation of mechanical equipment at a future date for raising the liquid product to the surface.

Well test reports submitted this year by the City of Medicine Hat showed, however, an appreciable increase in the gas pressure of wells in that area. From 1929 to 1930 this situation was considerably reversed, pressures in that area declining to such an extent as to offer a very real menace to the field. Protective measures were then taken by the Petroleum and Natural Gas Division resulting in the satisfactory reports now on hand regarding this particular situation.

In the Viking field reports of water intrusion through defective casings have been received which may result in curtailing the useful life of wells in that area, and it is possible that similar protective measures, as carried out in the Medicine Hat field, may become necessary.

Fort McMurray Tar Sands.—A special tour of inspection was made during the year of developments carried out in the tar sand area at Fort McMurray. An illustrated report covering the tour appears in the Petroleum and Natural Gas Division's section of this publication.

Exhibits.—At the close of the Division's report the following exhibits are attached:—

Exhibit A.—Oil and gas production for the fiscal year;

Exhibit B.—Statement of Turner Valley allowable withdrawals of gas as intimated to operators, April 3rd, 1933;

Exhibit C.—Wells completed during the fiscal year or still in course of drilling at its close;

Exhibit D.—Memorandum on oil and gas potenitialities in the Aldersyde area by R. M. S. Owen, Petroleum and Natural Gas Division;

Exhibit E.—Graph showing generalized structure section from Turner Valley to Aldersyde;

Exhibit F.—Map of the oil and gas fields of Alberta.

Forest Service

Sub-Agency Duties.—An enlargement of the Forest Service's responsibilities became necessary during this period by the arrangement whereby timber inspectors should undertake, within the divisions for which they were responsible, the additional duties of sub-agency land office services. With the abolition of the majority of sub-agencies throughout the province, instituted as a policy of economy, it became necessary to add these new duties to officers of the Service with a view to continuance of sub-agency work. While carrying out the economy intended this new work necessarily and unavoidably interfered with the inspectors' regular duties.

Fire Season.—The fire season during the year was on the whole a normal one. Hazardous conditions materialized in certain large sections of the Province and a few very destructive fires resulted during which control was both difficult and expensive.

Weather conditions in Alberta year by year are extremely variable and some section of the Province will usually experience a combination of situations which will produce a fire hazard. Only in exceptional years, such as in 1932, is Alberta comparatively free from the menace of destructive fires.

Number of Fires.—Fires during the year within and outside forest reserves numbered 288 which burned over an area of 93,765 acres of which 30,955.87 acres were non-forested lands. Total loss of timber and other property amounted to $195,805.36 with a total cost in fire suppression of $35,381.67.

A summary of fire losses within and outside Alberta forest reserves from October 1st, 1930, to December 31st, 1933, is given on the next page.

SUMMARY OF FIRE LOSSES WITHIN ALBERTA FOREST RESERVES

Period	Number of Fires	Cost of Suppression	Area (In Acres)	Salvable Timber *M.,f.b.m.	Salvable Timber (Cords)	Unsalvable Timber *M.,f.b.m.	Unsalvable Timber (Cords)	Total Loss
October 1, 1930 to March 31, 1931	9	$ 551.67	41.925	.....	.....	2.00	129.00	$ 71.69
April 1, 1931 to December 31, 1931	31	17,624.12	52,218.05	2,370.5	3,086	6,295.73	111,599.00	154,651.47
January 1, 1932 to December 31, 1932	32	3,491.04	2,555.75	8.00	15,863	3,845.00	1,005.60	8,790.73
January 1, 1933 to December 31, 1933	39	18,409.92	29,275.88	26.75	1,201	19,188.25	108,414.00	95,796.93
TOTALS	111	$40,076.75	84,091.605	2,405.25	20,150	29,330.98	221,147.60	$259,310.82

SUMMARY OF FIRE LOSSES OUTSIDE ALBERTA FOREST RESERVES

October 1, 1930 to March 31, 1931	47	$ 686.64	11,145.19	155.00	.....	3.75	.....	$ 79,950.85
April 1, 1931 to December 31, 1931	591	82,088.89	552,658.07	134,536.00	104,199.00	122,690.5	684,625.5	712,835.79
January 1, 1932 to December 31, 1932	347	15,320.51	133,562.14	274.75	12,215.00	40,627.15	132,743.00	152,085.58
January 1, 1933 to December 31, 1933	249	16,971.75	64,489.12	4,383.50	13,953.50	41,694.50	59,545.00	100,008.43
TOTALS	1,234	$115,067.79	761,854.52	139,349.25	130,367.50	205,015.90	876,913.50	$1,044,880.65

SUMMARY OF FIRE LOSSES WITHIN AND OUTSIDE ALBERTA FOREST RESERVES

October 1, 1930 to March 31, 1931	56	$ 1,238.31	11,187.115	155.00	.....	5.75	129.00	$ 80,022.54
April 1, 1931 to December 31, 1931	622	99,713.01	604,876.12	136,906.5	107,285.00	123,986.23	796,224.5	867,487.26
January 1, 1932 to December 31, 1932	379	18,811.55	136,117.89	282.75	28,078.00	44,472.15	133,748.60	160,876.31
January 1, 1933 to December 31, 1933	288	35,381.67	93,765.00	4,410.25	15,154.50	60,882.75	167,959.00	195,805.36
TOTALS	1,345	$155,144.54	845,946.125	141,754.50	150,517.50	234,346.88	1,098,061.10	$1,304,191.47

*M.,f.b.m.—Thousand, feet board measure.

FORESTRY REVENUE

Fiscal Years	*1930-31	1931-32	1932-33	1933-34	Total	This year in comparison with last	
						Increase	Decrease
Timber Permits	$ 6,159.32	$ 9,358.17	$ 6,096.73	$ 8,834.06	$ 30,448.28	$ 2,737.33	.....
Timber Seizures	5.00	105.46	23.80	43.53	177.79	19.73	.....
Timber Sales	18,416.68	16,809.66	9,748.78	15,881.44	60,856.56	6,132.66	.....
Grazing Permits	3,416.79	10,394.88	12,098.99	13,033.83	38,944.49	934.84	.....
Hay Permits	.....	264.25	208.00	207.91	680.16	.....	$ .09
Fishing Permits	.....	1,342.25	1,087.50	918.00	3,347.75	.....	169.50
Surface Rentals	1,631.84	1,813.21	1,971.28	2,308.85	7,725.18	337.57	.....
Miscellaneous use Permits	.....	818.08	805.90	947.23	2,571.21	141.33	.....
Sundry Revenue	218.98	2,622.90	721.35	1,268.96	4,832.19	547.61	.....
TOTALS	$ 29,848.61	$ 43,528.86	$ 32,762.33	$ 43,443.81	$149,583.61	$ 10,851.07	$ 169.59
						169.59	
					Net increase.....	$ 10,681.48	

*Six months to March 31.

NOTE: In 1930-31 year, "Timber Permits, $6,159.32" and "Timber Sales, $18,416.68" as given above, are included in the Revenue Statement of the Annual Report (Forestry Section) for that period in the net total appearing under heading of "Timber Permits, Sales, etc."

In 1931-32 year, total of "Timber Sales, $16,809.66" includes "Application and Guarantee Deposits, $2,101.50"; "Sundry Revenue, $2,622.90" includes "Sale of Maps, $9.55." These items are shown separately in the Annual Report (Forestry Section) for that period.

In 1933-34 year, total of "Timber Sales, $15,881.44" represents totals of "Timber Sales, $13,556.44" and "Timber Sale Applications and Guarantee Deposits, $2,325.00" given separately in the Revenue Statement (Forestry Section) of this report.

Unemployment Relief Camps.—A few unemployment relief camps were continued in the southern portion of the Province in forest reserve area with the necessary supervision of work undertaken by officers of the Service.

Forest Nursery.—A continuation of nursery work, initiated in the fall of 1931 at Oliver, has led to necessary expansion. Oliver, though an ideal place for nursery development, is limited from the viewpoint of large scale operations. Arrangements were accordingly made for nursery activities similar to Oliver at other government institutions and a definite start was made at the Ponoka Mental Hospital and the Fort Saskatchewan and Lethbridge jails where a large number of seedlings from Oliver were set out in transplant beds as follows:

Ponoka Mental Hospital	35,000	lodgepole pine
Fort Saskatchewan Jail	75,000	" "
Lethbridge Jail	18,000	" "
	31,000	Scotch pine

Two-year old Russian poplars are now planted at twenty-five foot intervals on both sides of the highway between the Edmonton city limits and Oliver. The assistance of single, unemployed men was secured locally for this work.

A small model nursery and model farm shelter-belt are on the site of the forestry cabin at the Exhibition Grounds in Edmonton. After removal of the stock from the seed-beds the soil was thoroughly dug up and worked. Seeds of mountain ash, red oak and white elm were then planted.

Grazing on Forest Reserves.—Grazing resources during this period continued satisfactorily within the forest reserves. In the Crowsnest division of the Rocky Mountain Forest Reserve and the Cypress Hills Forest Reserve grazing utilization has almost reached the maximum carrying capacity of the range. From the Sheep River valley north grazing utilization is not intensive excepting in certain accessible districts.

FOREST RESERVES GRAZING REPORT

Fiscal Year	Number of Permits	Revenue	Number of Horses	Number of Cattle	Number of Mules	Number of Sheep
*1930-31	92	$ 3,717.75	1,600	5,346	1	.....
1931-32	456	10,394.88	3,417	15,041	....	4,379
1932-33	606	12,098.99	3,377	20,086	....	7,465
1933-34	493	13,033.83	3,185	20,230	....	6,705
Totals	1,647	$39,245.45	11,579	60,703	1	18,549
	Decrease	Increase	Decrease	Increase		Decrease
This year in comparison with last	113	$ 934.84	192	144	....	760

*Six months to March 31.

Lumber Manufactured.—Lumber manufactured from timber cut by holders of licensed and permit timber berths on provincial lands totalled for this period 44,959,769 feet, board measure, to which there was added 290,551 feet, timber procured from school lands timber berths, whilst timber cut from timber sales on Alberta forest reserves scaled 2,289,048 feet, board measurement.

Conditions in the lumber industry during the year remained at practically the same level as that of the year preceding though an improvement in the market was noticeable, which was due principally to the exhaustion of stocks. Railway tie manufacturing operations increased with the necessity of making replacements.

LUMBER MANUFACTURED

Fiscal Year	Licensed and Permit Timber Berths on Provincial Lands †(F.B.M.)	School Lands Timber Berths †(F.B.M.)	Timber cut from Timber Sales on Alberta Forest Reserves †(F.B.M.)
*1930-31	20,002,746	627,534	2,849,528
1931-32	36,562,070	1,454,022	808,000
1932-33	45,375,413	277,631	2,372,779
1933-34	44,959,769	290,551	2,289,048
Totals	146,899,998	2,649,738	8,319,355
	Decrease	Increase	Decrease
This year in comparison with last	415,644	12,920	83,731

*Six months to March 31.

†F.B.M.—Feet board measure.

Fisheries

A decided improvement was evidenced during the year regarding the production of commercial fish. Markets were undoubtedly better with the result that gains were secured by both fishermen for their products and by operating companies. Angling in the mountain streams of the south was subjected to drouth conditions, but wherever possible stranded fish were rescued from shallow waters and transferred to safety. Trout fishing continued to improve, the fish being larger in size with bigger creels obtained. A slight decrease showed in coarse fish angling due partly to lower waters in some of the lakes which caused the fish to change their feeding grounds. Over abundance of natural feed also contributed to the situation by making artificial bait unattractive. Very little angling was done during the winter due to severe weather conditions.

Commercial Production.—Commercial fishing showed an increase of 911,142 pounds over the preceding year. The value of this increase to fishermen was $36,684.70 and the value as marketed $69,946.73. Prices reached a higher average, particularly during March, and reports of depleted stocks held in cold storage assisted materially in the sale of freshly caught fish.

Operations at Wabamun and Pigeon lakes were exceptionally good, the values of catches in both exceeding that of the previous year.

Lesser Slave Lake reported an excellent season for pickerel with the whitefish catch showing good results. An increase of 504,503 pounds in total production of fish of all species taken from this lake appears for this year. Indications show that the intensive restocking policies undertaken in previous years in this water have started to prove most beneficial.

An increase of 14,730 pounds in the catch of lake trout at Cold Lake is also shown but a slight decrease existed in whitefish production. Value to fishermen for the year's operations in this lake increased by $1,263.44.

Production increases in the lakes of the Province containing commercial fish were generally evidenced and the value of restocking and subsequent conservation as an antidote to overfishing in certain waters was well demonstrated.

Equipment.—Fishermen this year were better equipped and operating companies, generally speaking, were more liberal with credit, due in a large measure to improved markets and keener competition among the buyers. A happier general situation prevailed throughout this period and most fishermen realized a clear profit for the first time in three years.

Markets.—Higher prices obtained throughout the different seasons. A continuation of the Department's campaign with regard to the careful handling of fish destined for markets, the use of clean boxes and insistence of proper distribution was productive of good results.

TOTAL AMOUNT OF FISH TAKEN FOR COMMERCIAL PURPOSES AND ITS VALUE

Fiscal Year	Weight (lbs.)	Value to Fishermen	Value as Marketed
*1930-31	1,851,848	$ 70,624.00	$ 94,032.00
1931-32	3,337,980	115,928.10	189,927.88
1932-33	2,655,214	94,439.65	130,808.51
1933-34	3,566,356	131,124.35	200,755.24
Totals	11,411,398	$412,116.10	$615,523.63
Increase this year in comparison with last	911,142	$ 36,684.70	$ 69,946.73

Domestic Fishing.—The number of licenses for domestic fishing increased 50 during the year, but a decrease appeared in the total catch of 46,750 pounds. Accurate returns are difficult to obtain owing to licensees usually having no method of weighing their fish. The estimated total amount taken was 411,250 pounds.

Residents of the Province, particularly farmers, will travel long distances to take advantage of obtaining their supply of fish by this method. The decrease reported is no doubt due to the close check kept during this period on those who previously had been inclined to take more fish than they actually required for domestic needs and disposing of the surplus product unlawfully.

Indian Fishing.—During the year Indian fishing increased once more by 50 additional permits which were issued with an additional poundage of 87,635. The estimated amount of all species taken by Indians for the year totalled 947,635 pounds.

Angling.—Trout fishing continued to improve and provided as hitherto the major sport for anglers. Loch Leven trout in the Red Deer River and its tributaries continued to be as noticeable in those waters as in the previous year, but rainbow and cutthroat species were the most popularly sought after.

With improved economic conditions angling will greatly increase and heavier stocking of the streams will become necessary. This will be especially required for the Edson district when the Jasper Highway is completed.

A regrettable incident was reported in the loss of all fish in Nakamun and Whitewood lakes as a result of severe winter weather with thick ice and snow. It is to be hoped that with restocking these waters will resume their importance as popular angling resorts.

The destroying of predacious fish in the game fish rivers of the Province continues to be an important section of the Division's conservation programme with regard to angling.

TOTAL AMOUNT OF FISH TAKEN BY ANGLING

Fiscal Year	Game Fish (Trout, Rocky Mountain Whitefish and Arctic Grayling)	Other Fish (Goldeye, Pickerel, Perch and Pike)	Total
	Pounds	Pounds	Pounds
*1930-31	.....	1,225,000	1,225,000
1931-32	457,975	1,756,919	2,214,894
1932-33	422,638	1,260,034	1,682,672
1933-34	355,000	1,133,730	1,488,730
TOTALS	1,235,613	5,375,683	6,611,296
Decreases this year in comparison with last	67,638	126,304	193,942

*Six months to March 31.

TOTAL AMOUNT OF FISH OF ALL CLASSES TAKEN BY ANGLING AND NETS

Fscal Year	Angling (Lbs.)	Domestic Fishing (Lbs.)	Indian Fishing (Lbs.)	Commercial Fishing (Lbs.)	Total (Lbs.)
*1930-31	1,225,000	113,200	1,130.000	1,851,848	4,320,048
1931-32	2,214,894	547,078	736,000	3,337,980	6,835,952
1932-33	1,682,672	458,000	860,000	2,655,214	5,655,886
1933-34	1,488,730	411,250	947,635	3,566,356	6,413.971
TOTALS	6,611,296	1,529,528	3,673,635	11,411,398	23,225,857
This year in comparison with last	Decrease 193,942	Decrease 46,750	Increase 87,635	Increase 911,142	Increase 758,085

NOTE: The noticeable decrease in poundage under the heading of Indian fishing which followed the fiscal year 1930-31 is due to the fact that Indian fishing privileges were denied to half-breeds after the close of this period.

TOTAL AMOUNT OF FISHING LICENSES AND PERMITS ISSUED

Licenses or Permits	*1930-31	1931-32	1932-33	1933-34	Total	This year in comparison with last Increase	Decrease
Domestic licenses	566	555	458	508	2,087	50	....
Fishermen's and commercial licenses	1,033	755	598	746	3,132	148	....
Angling permits sold by Fisheries Division	7,731	6,533	4,963	4,823	24,050	....	140
Angling permits sold by Forestry Division	.....	566	478	397	1,441	....	81
Indian permits	1,130	736	860	910	3,636	50	....
TOTALS	10,460	9,145	7,357	7,384	34,346	....	....

Total increase of fishing licenses and permits over last year,—27.

Removal of Predacious and Undesirable Fish.—This work has been carried on for many years but no record of numbers removed or destroyed was kept until 1928. From 1928 to 1932 inclusive the following fish belonging to this category were removed from trout waters:

Sucker, ling	67,150
Pike	94
Large Dolly Varden trout	214
TOTAL	67,458

The large Dolly Varden trout are of a cannibalistic nature and are therefore a serious menace to streams inhabited by game fish, making their removal a necessity.

During 1933 the following fish were removed from trout waters:

Sucker	113,620
Pike	865
Dolly Varden trout	61
TOTAL	114,546

Rescue of Fish.—As a result of the continued drought in the southern part of the Province the rescue of game fish by transfer to more suitable waters was carried out in those streams which threatened to become dry.

During the summer of 1933 the following fish were rescued in this manner:

Trout	1,258
Rocky Mountain whitefish	2,729
TOTAL	3,987

SUMMARY OF CONFISCATIONS AND PROSECUTIONS FOR INFRACTIONS OF FISHERIES REGULATIONS

Fiscal Year	Confiscations	Prosecutions
*1930-31	29	27
1931-32	40	68
1932-33	68	89
1933-34	53	62
TOTALS	190	246
Decreases this year in comparison with last	15	27

*Six months to March 31.

Restocking of Fish.—Restocking from the federal hatcheries of Waterton, Banff and Jasper of game fish fry and fingerlings into waters outside the national parks was carried out during the year as follows:

Hatchery	Fry	Advanced Fry	Fingerlings, No. 1
Waterton	.....	437,000	313,275
Banff	90,000	330,015	860,560
Jasper	.....	150,000	.....
TOTALS	90,000	917,015	1,173,835

Fry	90,000
Advanced fry	917,015
Fingerlings, No. 1	1,173,835
Total distribution	2,180,850

Restocking Arrangements for 1934.—Arrangements have been made to distribute for 1934 a total of 2,650,000 rainbow, cutthroat, Loch Leven and speckled trout eyed eggs from the three federal hatcheries.

Lesser Slave Lake Hatchery.—The Lesser Slave Lake hatchery was not operated during the year except for the short period from April 1st, 1933, until the fry hatched during the winter were liberated.

FISH CULTURE—PLANTING OF GAME FISH FRY AND FINGERLINGS INTO PROVINCIAL WATERS OUTSIDE THE NATIONAL PARKS

Fiscal Year	Game Fish (Trout)	
	Number of Plantings	Number of Fry
*1930-31	.....	.....
1931-32	157	2,236,500
1932-33	147	1,960,250
1933-34	168	2,180,850
TOTALS	472	6,377,600
Increases this year in comparison with last	21	220,600

EXAMINATION AND STOCKING OF LAKES AND OTHER BODIES OF WATER

Fiscal Year	Lakes and other bodies of water examined regarding suitability for stocking	Number found suitable	Number found unsuitable	Lakes and other bodies of water stocked during season
*1930-31	....	....	....	....
1931-32	37	30	7	4
1932-33	20	9	11	22
1933-34	30	17	13	2
TOTALS	87	56	31	28

REVENUE OBTAINED FROM FISHING LICENSES, PERMITS, SALES AND SUNDRIES

Fiscal Year	Revenue
*1930-31	$ 4,849.29
1931-32	18,861.22
1932-33	14,739.60
1933-34	15,071.61
TOTAL	$53,521.72
Increase this year in comparison with last	332.01

*Six months to March 31.

Coal

The total output of coal produced in the Province during the calendar year, 1933, showed a decrease of 155,246 tons from that of the preceding year. Production during 1933 totalled 4,714,784 tons with a valuation of $12,197,339.20. In addition to this tonnage there were 2,730 tons produced by farmers for their own use, under permits, which figure is not included in the total output.

A considerable increase is shown in the tonnage of coke produced in the Crowsnest Pass area, the bulk of which was used at the Smelter at Trail, B.C.

Disposition of Products.—Coal sold for consumption in this Province reached a total of 1,123,357 tons for the calendar year, 1933. The balance of production was disposed of as follows:—coal shipped to other provinces in Canada, 1,662,971 tons; shipped for United States consumption, 18,449 tons; sold to railway companies, 1,500,061 tons; used for making briquettes, 14,935 tons; used for making coke, 75,275 tons; used under colliery boilers, 180,159 tons; used by colliery railroads, 5,994 tons; put to stock, 38,004 tons; put on the waste heap, 136,679 tons.

COAL PRODUCTION

Calendar Year	Tonnage	Valuation
1930	5,755,911	$19,379,000.00
1931	4,564,290	13,415,745.00
1932	4,870,030	13,441,193.00
1933	4,714,784	12,197,339.20
TOTALS	19,905,015	$58,433,277.20
Decreases this year in comparison with last	155,246	$ 1,243,853.80

Disposition of Electrical Power.—Purchased electrical power used by Alberta coal-mines during the year totalled 17,611,959 k.w. hrs.

ELECTRICAL POWER USED FOR OPERATION OF ALBERTA COAL-MINES

Calendar Year	K.w. hrs.
1930	25,003,606
1931	16,918,625
1932	14,875,890
1933	17,611,959
TOTAL	74,410,080
Increase this year in comparison with last	2,736,069

Mines Branch Annual Report.—Statistical information covering Alberta's coal-mining activities for the calendar year, 1933, is given in complete detail in the published annual report of the Mines Branch for that period, which appears as a separate publication to this report.

Shale and Clay Mined

During the calendar year, 1933, 3,234 tons of clay and shale were mined from which 1,221,060 bricks were manufactured. One shale pit was in operation. Information covering this production is also included in the Annual Report of the Mines Branch for the calendar year, 1933, already referred to.

SHALE MINED—BRICKS AND TILES MANUFACTURED

Calendar Year	Shale Mined (Tonnage)	Bricks Manufactured (Number)	Tiles Manufactured (Tonnage)
1930	67,517	22,007,045	.....
1931	23,855	7,091,080	2,825
1932	8,446	3,444,010	182
1933	3,234	1,221,060	.....
TOTALS	103,052	33,763,195	3,007
Decreases this year in comparison with last	5,212	2,222,950	182

Inspection of Revenue

Examination of Records.—On October 1st, 1930, there were 251 active coal mines and 85 producing oil and gas wells operating in the Province. Of these, the books and records of the royalty bearing companies had not heretofore been examined by representatives of either the Dominion or the Alberta governments. With the appointment of an Inspector of Revenue, this work which involved a considerable amount of research was given the necessary attention. In addition to these duties, others, which demanded the investigation of both complaints and conflicting applications for leases of Crown lands, together with the supervision of collections, were duly carried out.

School Lands Revenue.—During the period of this report, three inspectors were loaned from the Department of Municipal Affairs for collection of school lands revenue in the Edmonton district. The undertaking, though more or less an experiment, proved a success, a total of $37,785.82 being collected in three months, and a decision was arrived at to extend this work so as to cover all districts in the Province.

Unreported Production.—As a result of the research work carried out by this branch of the Department a very considerable amount of coal tonnage and petroleum and natural gas royalty was discovered unreported and action was taken for its collection.

Bird Sanctuaries and Public Shooting Grounds

Co-operation offered by the general public in the observance of laws covering bird sanctuaries and public shooting grounds was evidenced during the year and a realization of the value of these special reservations was apparent.

A matter of concern has developed, however, in the continued dry seasons which have created a very real water shortage over large areas. A heavy growth of noxious weeds where water has receded presents at the moment a new and serious problem, which it will be necessary to control.

Operation of Boats on Lakes and Rivers

The necessity for exercising some control over the operation of motor boats and other small craft on the waters of the Province resulted during the summer in the passing of an order in council which gave to the Fisheries Division the responsibility of this administration.

An exception to this regulation referred to boats of over five tons displacement which came under federal regulations and were therefore directly under the supervision of the Department of Marine at Ottawa.

Individual detailed reports from the various divisions of the Department follow.

Your obedient servant,

J. Harvie,
Deputy Minister.

June 30th, 1934.

OBITUARY

ALBERT HELMER

It is with the deepest regret that the Department has to report the death of Albert Helmer, Supervisor of Grazing, which took place in California on Thursday, August 9th, 1934, during a visit to that State.

Mr. Helmer was born in Russell, Ontario, in 1858. In 1880 he came west with a survey party and a year later, with William Ogilvie, D.L.S., of Ottawa, became a member of the expedition which surveyed the fourth meridian, now the boundary line between Alberta and Saskatchewan. The following year the City of Tulsa, Oklahoma, received its original site from a survey party of which Mr. Helmer was a member. Returning to Russell he resided there for a number of years but eventually came west again. Between 1904 and the day of his death he served the Dominion Government and the Government of the Province of Alberta in an executive capacity as Ranching Inspector and Supervisor of Grazing.

Long years of efficient and loyal service represent his record. By 1881 he had helped to survey an empire. By 1934 he had helped to build it. From Maple Creek to the foothills of the Rockies, from the international boundary to the northern limit of the ranges he was known, respected and loved. Known for the experience which comes from a long life of untiring effort. Respected for the great understanding and insight of the problems of his work. Loved for his humanity. No memorial of brass or stone can equal the memory of his service, recorded in government archives and in the hearts of men.

His last official report as Supervisor of Grazing, published in the previous annual report of this Department, revealed the completeness of his knowledge. A masterly review on present day problems of the range. A stirring appeal for the protection of grass, that "most important of all crops." Death took place before the completion of his report for this year's publication.

Amongst the workers whose common goal is service he held a special place. His sudden and unexpected death came as a shock to the governments he had served and to all who had been privileged in knowing him.

The passing of Albert Helmer closes another chapter in the history of the West and leaves a gap which it will be hard to fill.

Provincial Lands Administration

REPORT OF THE EDMONTON LAND AGENT, J. W. STAFFORD

A perusal of the Annual Report of the Edmonton Agency for the fiscal year ending March 31st, 1934, which is herewith submitted, will reveal a considerable increase in the majority of transactions effected together with an increase in revenues received.

The monthly revenue statement, embodied in this report, discloses a noticeable increase, with the exception of July, September and October, as compared with similar periods during the preceding fiscal year.

Correspondence has been increasingly heavy and work in connection with applicants calling personally at this office appeared, if anything, to be a little heavier than in previous years.

In connection with the granting of homestead entries, a slight decrease is recorded, the total this year comprising 2,178, of which number 536 entries were granted to women.

The following business has been transacted in addition to the collection of ordinary revenue and the transaction of other business of a routine nature:

Homestead entries granted, 1st—1923, 2nd—255—total	2,178
Soldier entries granted	19
Applications for petroleum and natural gas rights	16
Applications for coal-mining leases	19
Domestic coal permits issued	2
Bar-digging permits issued	3
Certificates of work issued (quartz)	5
Placer mining claims granted	17
Quartz mining claims granted	6
Applications for school lands cultivation permits	353
Applications for provincial lands cultivation permits	10
Applications for grazing permits issued (school lands)	559
Applications for grazing permits issued (provincial lands)	106
Applications for grazing leases (provincial lands)	55
Timber permits issued	1,868
Permits to operate custom saw-mills	263
Hay permits issued (school lands)	260
Hay permits issued (provincial lands)	538
Number of applications for patent received	628
Number of applications for patent recommended	467
Number of applications for patent dealt with	2,266
Number of applications for patent checked for head office	1,509
Number of applications for cancellations received	1,019
Number of cancellation proceedings instituted by this office	186
Number of entries cancelled	1,251
Number of timber berths on provincial lands sold	66
Number of timber berths on school lands sold	11
Number of letters received	50,387
Number of letters dispatched	70,179
Number of stencils cut, 386, pages mimeographed	77,123
Number of translations for this and other departments	383

The following statement sets forth clearly the amount of revenue collected during each month with classification thereof:

Month	Lands	Timber and Grazing	Mining	School Lands	Tax Recovery	Total
1933—						
April	$ 2,017.48	$ 18,613.23	$ 15,440.52	$ 3,712.39	.....	$ 39,783.62
May	3,337.94	14,640.65	15,604.85	4,263.81	$ 51.73	37,898.98
June	4,178.96	13,320.12	7,314.64	3,018.91	.....	27,832.63
July	4,101.47	13,751.72	9,303.95	1,824.12	36.66	29,017.92
August	3,078.20	10,128.15	860.12	4,855.04	6.24	18,927.75
September	1,935.44	5,169.30	10,931.38	1,365.55	.....	19,401.67
October	3,382.75	10,728.21	13,916.32	2,144.20	.....	30,171.48
November	3,118.50	8,103.34	21,892.68	7,136.27	5.00	40,255.79
December	3,086.85	4,793.55	26,340.69	4,225.90	6.03	38,453.02
1934—						
January	2,564.77	8,116.32	11,347.22	6,923.80	.....	28,952.11
February	2,643.90	7,788.77	15,430.33	6,112.93	11.40	31,987.33
March	3,060.31	8,426.34	10,863.04	3,929.07	15.96	26,294.72
TOTALS	$36,506.57	$123,579.70	$159,245.74	$ 49,511.99	$133.02	$368,977.02

These revenues comprise payments on account of land sales, royalties and rentals on coal, petroleum and natural gas leases, rental on grazing leases, fees covering quartz and placer claims, homestead entry fees, payments for the issue of grazing and cultivation permits on school lands and business of a similar nature.

Logging and lumbering operations employed a much larger number of men than during the past fiscal year and though only a small increase was recorded in the manufacture of lumber, a very gratifying increase was shown in that of railway ties.

The following statement shows the products manufactured by the holders of timber berths under yearly licenses and permits:

	License Berths	Permit Berths	School Lands Berths
Lumber manufactured, feet, board measure	28,824,435	14,172,132	228,497
Railway ties	19,930	386,261	18,625
Piling, lineal feet	.....	9,055	.....
Lath	1,922,050	583,356	.....
Mine timber, feet	6,710	12,862	.....
Logs, lineal feet	7,819	.....	.....

Lumber manufactured on timber sales amounted to 926,795 feet, board measure, whilst logs cut totalled 4,100 lineal feet.

The total amount of lumber manufactured during this fiscal year is shown to be 47,595,539 feet, board measure, together with a total of 507,364 railway ties. A total of 1,568 miscellaneous permits was issued authorizing the cutting of timber on provincial lands and 300 permits on school lands. The quantity of timber authorized to be cut under these permits totalled 7,886,551 feet, board measure, as shown in the following statement:

	Provincial Lands Amount Authorized	School Lands Amount Authorized
Lumber, feet, board measure	7,729,720	156,831
Logs, lineal feet	230,701	6,566
Fence rails	1,211,091	250
Roof poles	230,770	.....
Fence posts	279,777	250
Cordwood, cords	2,916	373
Railway ties	164,279	6,650
Telephone and telegraph poles	1,050	.....
Piling, lineal feet	.....	5,152
Shingles	160,000	16,000
Mining timber, lineal feet	203,169	.....

One hundred and thirty-seven seizures were made of timber cut from provincial lands and ten of timber cut from school lands, as follows:

TIMBER SEIZURES

	Provincial Lands	School Lands
Amount of timber covered thereby: Logs, lineal feet	37,959	.....
Lumber, feet, board measure	1,331,051	923,580
Mine timber, lineal feet	17,300	9,695
Fence posts	6,294	1,622
Ties	52,417	205
Piling, lineal feet	11,993	.....
Cordwood, cords	123	6
Rails	816	205

A total of 538 hay permits was issued on provincial lands authorizing the cutting of 5,086 tons, and under authority of which 3,189 tons were cut.

On school lands, 260 permits were issued authorizing a total cut of 1,756 tons in connection with which 1,144 tons were reported as having been cut.

Seven hay seizures covering a total of 79 tons were made on school lands and four covering 23 tons on provincial lands.

REPORT OF THE CALGARY LAND AGENT, M. GOSSIP

The volume of business transacted in the Calgary Agency during the period of this report showed a distinct improvement over the previous year. This was especially noticeable during the last six months and revenue collected over the whole period revealed an increase.

The general routine work of the office still continued to be very heavy owing to the re-opening of homesteading in this district on May 2nd, 1933, and to an increase in petroleum and natural gas activities. It will be noted that over 4,000 petroleum and natural gas leases were cancelled during the year, and it is estimated that about 32,500 acres of such rights were put up for sale during the same period, of which 23 parcels were sold, aggregating 4,580 acres, the total amount of bonuses received being $6,639.50.

It will also be noted that 532 homestead entries were accepted during the year as against 2 for the previous year. While this number is not excessive, it added considerably to the work of the office. In addition to this total, 92 entries were also taken for the Edmonton and Peace River areas, this office acting in the capacity of a sub-agency for those territories.

On receipt of instructions from head office, two visits were paid, during the fall of 1933, to the pre-emption area of this district for the purpose of assisting settlers who wished to convert their pre-emption entries into homesteads under an amendment to the Act passed during the session of 1932-33 and who, owing to financial or other reasons, were unable to come to Calgary to give personal attention to this matter as required under the regulations. It might be stated that the settlers affeced were very appreciative of the efforts of the Department in assisting them in this manner, and in spite of almost impossible weather conditions and bad roads, 155 homestead entries were taken and revenue collected amounted to $1,547.46 in addition to considerable other business being transacted.

The following is a statement of operations handled in the Agency during the year in addition to the collection of revenue and transaction of business of an ordinary routine nature, viz.:

Homestead entries granted	532
Soldier entries granted	1
Applications for grazing leases received and checked	101
Applications for petroleum and natural gas leases	80
Sales of petroleum and natural gas rights	25
Cancellation of petroleum and natural gas leases	4,440
Applications for coal leases	65
Domestic coal permits issued	45
Coal leases and permits cancelled	98
Quartz claims granted	1
Placer claims granted	13
Cultivation permits issued on school lands	386
Cultivation permits issued on provincial lands	36
Grazing permits issued on school lands	804
Grazing permits issued on provincial lands	190
Timber permits issued	222
Custom saw-mill permits issued	35
Number of applications for cancellation received	66
Number of cancellation proceedings instituted by this office	233
Entries cancelled	388
Applications for patent received	116
Number of letters received	44,934
Number of letters dispatched	47,829

The total revenue received during the year amounted to $269,088.97, of which $263,016.75 was applied as shown under the headings of the following statement, viz.:

Month	Lands	Timber and Grazing	Mining	School Lands	Tax Recovery	Total
1933—						
April	$ 39.65	$ 1,120.96	$ 21,851.30	$ 4,458.84	$ 58.64	$ 27,529.39
May	645.91	1,157.67	10,211.55	1,375.79	24.88	13,415.80
June	1,124.28	1,022.58	10,939.52	1,368.46	33.62	14,488.46
July	836.30	1,446.25	12,931.04	2,521.71	31.95	17,767.25
August	764.19	1,128.96	8,273.79	930.58	9.20	11,106.72
September	815.40	1,122.48	13,994.32	616.05	8.20	16,556.45
October	923.15	573.21	25,248.14	646.29	9.18	27,399.97
November	1,576.15	944.13	25,061.70	1,489.59	31.88	29,103.45
December	810.07	566.83	19,621.50	546.10	8.20	21,552.70
1934—						
January	450.39	1,229.89	18,478.82	1,024.33	37.40	21,220.83
February	489.36	1,426.81	19,619.86	2,406.33	65.73	24,008.09
March	549.13	1,476.30	26,103.15	10,615.92	123.14	38,867.64
TOTALS	$9,023.98	$ 13,216.07	$212,334.69	$ 27,999.99	$442.02	$263,016.75

The revenue received was chiefly made up of collections of petroleum and natural gas royalties which amounted to approximately $72,528.00 as compared with $71,749.00 collected the previous year. Coal royalties amounted to $78,299.83 as against $60,690.64 the previous year. Considerable revenue was also collected on account of petroleum and natural gas rentals and coal rentals. Collections on account of timber royalties still continued low.

It is estimated from returns received in the office that the approximate amount of naphtha and accrued oil sales from wells operated on provincial lands in this district amounted to 603,387 barrels, while 1,577,571 tons of coal were produced from mines operating under authority of government leases and sales subject to royalty.

There was no activity in placer or quartz mining during the year.

The timber activities in the district continued to be practically at a stand-still but the prospects for the future in this line of activity are beginning to look a little brighter. The following statements show the products manufactured by holders of timber berths under yearly licenses and permits, viz.:

	License Berths	Permit Berths
Lumber manufactured, feet, board measure	671,023	408,890
Lumber sold, feet, board measure	871,383	468,824
Railway ties	2,795	1,709
Mine timber, lineal feet	134,988	14,341
Saw logs, lineal feet	17,839	7,350

TIMBER OPERATIONS CONDUCTED UNDER AUTHORITY OF PERMITS ISSUED TO SETTLERS AND OF A MISCELLANEOUS NATURE

	Provincial Lands	School Lands
Permits issued	191	31
Lumber, feet, board measure	322,583	13,666
Building logs, lineal feet	17,868	96
Fence rails	13,042	1,610
Roof poles	2,550	.....
Fence posts	7,375	130
Cordwood, cords	1,361 (dry)	229
Railway ties	33,891	.....
Telephone and telegraph poles	.....	600
Mining timber, lineal feet	84,400	.....
Shingle bolts	5 cords	.....
Round lagging	14 cords	.....

TIMBER SEIZURES

	Provincial Lands	School Lands
Number	13	4
Amount of timber covered thereby:		
Lumber, feet, board measure	35,625	.....
Saw logs, lineal feet	11,132	2,800
	(17 birch trees 6"	to 10")
Railway ties	750 (sawn)	600 (hewn)
Mine timber, lineal feet	2,878	.....
Cordwood, cords	.....	4
Roof poles	.....	40

HAY PERMITS ISSUED

	Provincial Lands	School Lands
Number	83	50
Tons of hay cut	1,436	772

REPORT OF THE LETHBRIDGE LAND AGENT, R. CRUICKSHANK

The business of this office for the year ending March 31st, 1934, as shown by the following information, indicates a larger volume of work than was done during the previous year. The general revenue total derived from business of this Agency as shown in the revenue statement of this report does not include the amounts which have been remitted direct to Head Office.

The following outlines the business transacted in addition to the collection of ordinary revenue and work of a routine nature:

Applications for grazing leases	242
Applications for petroleum and natural gas leases	80
Applications for coal-mining leases	4
Applications for limestone and quarrying leases	2
Applications for placer mining (renewal)	1
Applications for quartz mining	12
Applications for gravel permits	4
Domestic coal permits	83
Provincial lands grazing permits	240
School lands grazing permits	394
School lands cultivation and grazing permits	40
Provincial lands cultivation and grazing permits	157
Timber permits, provincial lands	18
Timber permits, school lands	7
Hay permits, provincial lands	14
Hay permits, school lands	2
Number of applications for patent received	112
Number of applications for cancellation received	8
Number of cancellation proceedings instituted by this office	60
Number of entries cancelled	337
Number of soldier entries granted	2
Number of first homestead entries granted	122
Number of second homestead entries granted	188
Number of homestead entries granted to women	87
Number of letters received	35,841
Number of letters dispatched	41,314
Grazing leases (covering 2,190,444 acres)	1,664
Coal-mining leases (covering 10,496.76 acres)	66
Coal-mining berths (covering 2,619 acres)	10
Miscellaneous leases	25

Homestead privileges were resumed in this district on May 1st, 1933, and settlers holding pre-emptions were allowed to abandon and re-acquire the land as homesteads, second homesteads or soldier grants providing that they were eligible to apply for entry. The majority of entries granted have been abandoned pre-emptions.

Most of the cancellation proceedings instituted were against pre-emptions and homesteads of over five years standing.

The total revenue received at this office during the year was $119,603.67. This amount was applied under the following headings as shown by monthly distribution and indicates an increase of revenue over the previous year in the lands, mining and school lands branches. More interest has been evident in petroleum and natural gas which is responsible for the increase in mining lands revenue.

Month	Lands	Timber and Grazing	Mining Lands	School Lands	Tax Recovery	Total
1933—						
April	$ 85.98	$ 703.81	$10,794.33	$ 2,679.11	$ 881.27	$ 15,144.50
May	233.94	871.54	651.47	492.98	420.45	2,670.38
June	265.85	1,678.07	1,416.06	1,477.46	437.70	5,275.14
July	541.20	1,857.91	9,815.59	1,812.20	417.24	14,444.14
August	491.75	648.59	7,647.20	692.26	434.20	9,914.00
September	884.00	1,348.01	3,202.09	642.46	351.18	6,427.74
October	596.76	1,000.50	9,393.00	2 017.71	261.87	13,269.84
November	1,224.60	1,108.02	3,829.48	1,458.99	370.69	7,991.78
December	514.55	1,424.83	5,236.55	1,430.89	665.45	9,272.27
1934—						
January	1,334.36	890.36	5,293.16	795.88	276.87	8,590.63
February	729.57	2,122.87	5,620.39	2,318.74	741.16	11,532.73
March	611.27	1,181.47	6,277.89	5,255.84	1,744.05	15,070.52
TOTALS	$7,513.83	$14,835.98	$69,177.21	$21,074.52	$ 7,002.13	$119,603.67

TIMBER AND HAY PERMITS

	Provincial Lands	School Lands
Timber permits issued	18	7
Cordwood, cords	61	16
Fence posts	150	450
Fence rails	375	.....
Roof poles	125	25
Hay permits issued	14 (147 tons)	2 (32 tons)

TIMBER AND HAY SEIZURES

Timber seizures	1 (lumber, 8,232 ft., board measure)	.....
Hay seizures	1 (50 tons)	.....

REPORT OF THE PEACE RIVER LAND AGENT, J. J. E. CLARKE

The report of the Peace River Land Agency for the fiscal year ending March 31st, 1934, shows a decrease in revenue collected amounting to $11,167.05 as against the total collections of the combined Peace River and Grande Prairie offices during the previous year, which is without doubt a result of present economic conditions in this area. This reduction may be distributed approximately as follows:

Lands	$8,000.00
Timber and grazing	1,800.00
School lands	1,500.00

The collection of payments on land sales, rentals and improvements has been very slow and difficult, requiring numerous letters at close intervals. In a great number of cases payments for improvements have been made on the basis of small instalments which in some instances have been as low as $1.00.

The following statement shows the business in force during the period of this report:

Homestead entries granted	656
Soldier entries granted	4
Improvement payments	206
Land sale payments	20
Applications for cancellation fees	331
Authorities to refile	287
Searches and maps	174
Applications for patent received	1,149
Number of applications for cancellation received	345
Number of cancellation proceedings instituted by this office	163
Entries cancelled	645
Custom saw-mill permits issued	56
Grazing permits issued	136
Timber permits issued	1,123
Hay permits issued	329
Grazing rentals collected	133
Timber excess payments	91
Mining fees	9
Mining rentals	16
Mining royalty payments	52
Cultivation permits	37
Letters received	25,853
Letters dispatched	26,223
Inspections called for	782

In addition to the above, transactions of a miscellaneous nature such as timber and hay seizures, hay excess and sundry payments were given the necessary attention.

The following is a statement showing the different classes of revenue received during the period covered by this report:

Month	Lands	Timber and Grazing	Mining	School Lands	Fur Farm	Totals
1933—						
April	$ 574.70	$ 1,049.64	$ 44.30	$ 435.70	.....	$ 2,104.34
May	674.45	787.58	17.70	572.06	.....	2,051.79
June	1,108.15	666.84	135.00	195.30	.....	2,105.29
July	1,503.10	736.73	132.60	88.54	.....	2,460.97
August	1,513.00	516.56	.....	492.95	.....	2,522.51
September	717.21	228.10	.....	12.45	.....	957.76
October	877.25	214.30	61.60	23.28	.....	1,176.43
November	1,560.60	227.07	60.60	19.24	.....	1,867.51
December	725.22	201.84	20.45	206.17	.....	1,153.68
1934—						
January	784.00	614.26	222.42	484.03	.....	2,104.71
February	674.25	479.49	61.80	130.43	.....	1,345.97
March	964.06	1,109.93	48.70	446.00	.....	2,568.69
TOTALS	$11,675.99	$ 6,832.34	$ 805.17	$ 3,106.15	.....	$22,419.65

This revenue does not include a number of payments on school lands sales and grazing rentals which were made direct to head office during this period. The general total in the above statement is made up of homestead entry fees, payments for improvements, etc., as shown in the schedule of business.

There was a splendid crop all through this country last season, but owing to an early snowfall much of the crop on the north side of the river is still in stook with consequent delay in threshing. Rabbits were extremely plentiful during the past winter and have caused great damage to the crops in stook, for which reason the yield will be disappointing. What with this calamity and the low prices received for grain the farmers and business men have been placed in an unenviable position financially, which has reduced their ability to meet obligations and no doubt has had an undesirable effect on the collections of this office.

Very little difference is shown between the number of hay and timber permits issued this year as compared with last. A small increase appears in timber with the reverse in hay.

The demand for local coal in Grande Prairie and adjacent towns continues to increase. Returns show 2,893 tons mined during the year. Two coal leases were recently granted on lands within a short distance of Peace River and development is expected to take place next winter. It is hoped that coal equal to that along the Wapiti will be located which would mean a considerable saving to the residents of this town, who at the present time are obliged to pay $8.50 per ton for inferior coal shipped in from outside points.

An increase of 42% appears in the total number of applications for patent received as compared with the combined total of the Peace River and Grande Prairie districts for the previous year. The total recommended for final consideration by the Department was 877. All applications required considerable care and attention and in a great number of cases several letters were necessary before they were in a condition for recommendation.

One permanent sub-agent at Grande Prairie, three timber inspectors and one inspector of the Fisheries Division are authorized to transact business for this office on certain days during each month at different points, in addition to which the offices at Lethbridge, Calgary, Edmonton and head office have also accepted business for this district. By this arrangement counter work has been considerably reduced which has proved most advantageous as otherwise it would have been a very difficult matter to carry on operations with the present small staff if all the business had been received over the counter.

	Provincial Lands	School Lands
Timber permits issued	1,117	6
Lumber, feet board measure	7,117,646	5,500
Logs, lineal feet	204,394	760
Fence rails	1,566,178	.....
Roof poles	309,958	.....
Fence posts	335,540	.....
Cordwood, cords	6,350	36
Shingles	33,000	.....
Shingle bolts (cords)	64	6
Piling, lineal feet	14,761	.....
Railway ties	4,525	.....

TIMBER SEIZURES

	Provincial Lands	School Lands
Number	26	1
Amount of timber covered thereby:		
Lumber, feet board measure	29,850	.....
Logs, lineal feet, board measure	4,800	2,200
Poles	83	.....
Ties	9,368	.....
Cordwood, cords	8	.....

HAY PERMITS

	Provincial Lands	School Lands
Number	265	64
Number of tons of hay	2,348½	551

HAY SEIZURES

	Provincial Lands	School Lands
Number	2	.....
Number of tons of hay	11	.....

Technical Division

REPORT OF THE TECHNICAL DIVISION, T. W. DALKIN

Since the issue of last year's report satisfactory progress has been made in transferring information from Ottawa to the new plan records set up by the Technical Division.

Those dealing with minerals have now been completed in as far as they show petroleum and natural gas leases, coal leases, patented mineral sales, coal land sales and mining lands sales. A beginning has now been made to check the fiats for patent with a view to plotting all underrights which have been alienated in the past. Until the fiats for every patented parcel of land in the Province have been searched, this particular phase of the work will not be complete. Certain mineral rights have been transferred to this Department with the tax recovery lands and the information thus secured will also be incorporated in these records. At the present time only one draughtsman is engaged upon this work and when it is realized that he is also responsible for the plans and descriptions of the current leases it will be understood that some considerable time must elapse before the mining records can be regarded as complete.

An examination of the old Dominion files and plan records was undertaken and a new set has been arranged which shows by township plan all licensed and permit timber berths. Work has been started on a set of forestry records which will show by plan of each township the boundaries of the reserves and the changes from time to time, the surface leases and all forest service improvements such as forest reserve headquarters, ranger cabins, look-outs, telephone lines, trails, etc.

The grazing records are now complete and show all grazing leases within the province plotted on township diagrams. With the completion of these a duplicate set of the plan records was forwarded to the office of the Supervisor of Grazing at Calgary together with a numerical index to the ranches. Arrangements have now been made with the Department of Municipal Affairs for grazing leases to issue through this Department covering the Tilley East and Berry Creek areas.

A great deal of work has been done in clarifying the records of the stock watering reserves transferred to this Division from Ottawa and during the past year certain orders in council have been passed releasing 6,790.79 acres, more or less, for other purposes, as it was found that such areas were no longer needed in this connection.

A set of records is now being made showing an index to the surveyed roadways affecting Crown lands. During the year a total of 105 plans of surveys of new road diversions affecting 433 parcels of land were recorded in this Division. Quit claims and compensation were obtained where the roadways affected lands under sales contracts and in cases of homestead entries, quit claims and compensation were exacted where the areas of the new roadways exceeded two and one-half per cent of the Dominion entries or four per cent of the area of homesteads filed upon under the provincial regulations. Numerous roadways were cancelled and each area in question added to the existing sale, entry or lease, as the case might be, care, however, being exercised to protect the government telephone leads where they were found to exist upon such cancelled roadways.

It has been discovered that there are a great number of transmission lines located upon government lands, permission for which had never been obtained from the Dominion Government. A complete check is now being made in this regard resulting in considerable correspondence which has been entered into with the various power and utility companies with a view to establishing legal rights by means of licenses of occupation over Crown lands. Similarly, correspondence has been started with corporations and individuals regarding large tracts of lake areas which have been used for a considerable length of time without government permission.

Below are appended the number of notifications issued and details of acreages patented for the fiscal year ending March 31st, 1934:

Nature of Grant	Number of Notifications	Area, Acres
Homesteads	841	131,955.013
Sales	43	2,963.71
Second homesteads	104	16,202.71
Soldier entries	46	7,257.82
Purchased homesteads	1	111.10
Pre-emption sales	3	480.00
Special grants	24	1,827.93
Exchange of land grants	5	826.12
School lands sales	34	3,595.05
Northern Alberta Railways	3	2.37
Canadian National Railways	1	2.12
Lacombe and North Western Railway	1	0.61
TOTAL	1,106	165,224.553

In examining the special grants it was interesting to note that there was a conveyance to the Dominion of Canada of an area representing 1,288 acres, more or less, which area is now included within the limits of Buffalo National Park. Negotiations were carried on with the Dominion Government for some time with the result that there was also a special grant put through for the Dominion covering an area of 206.29 acres, more or less. This area of land is located at the new eastern gateway of the Banff National Park. Representations were made that there was an area of land on the banks of the Brule River in township 77, range 5, west of the 6th meridian, which would be desirable for a park site and accordingly 6.49 acres, more or less, were patented in favour of His Majesty the King, in the right of the Province, as represented by the Minister of Public Works, subject, however, to an habendum clause restricting the use of the land to park purposes. Reservations were entered in the records against certain other lands for park purposes in township 83, range 19, west of the 5th meridian, and in township 72, range 9, west of the 6th meridian, which latter area is known as Saskatoon Mountain Park.

In reviewing the notifications covered by sales it is seen that an area of 2,562.13 acres, more or less, was patented to the different drainage and irrigation districts. Certain exchanges of lands were effected in the Tilley East area and notifications were accordingly issued covering 826.12 acres, more or less.

In addition to the areas set out in the foregoing schedule, fiats were issued in order to release a total of 365.89 acres, more or less, from the operations of an habendum clause restricting the use of the land to religious purposes.

In accordance with the agreement covering the transfer of the natural resources, certain lands were held by the Soldier Settlement Board, and according to information received from time to time 34 patents were issued direct by the Dominion Government covering an area of 5,178.34 acres, more or less. On the other hand, several tracts of land held by the Director of Soldier Settlement as agent of the Crown in the right of the Dominion were transferred to the Province after the lands had been offered for sale by public tender and other efforts to resell had been made without result. These lands

which comprise an area of 8,678.32 acres, more or less, are free and clear of all encumbrances and discharged of all rights and claims. They are located in unorganized territory.

Lands continue to be transferred to the jurisdiction of this Department from the Department of Municipal Affairs, and an area comprising 8,750.54 acres, more or less, was made available through tax recovery proceedings for administration by this Department. A small number of lots in certain subdivisions were also transferred. In addition, lands aggregating an area of 28,627.87 acres, more or less, previously held by the Canada Land and Irrigation Company were also transferred to this Department.

Several applications in the vicinity of the junction of Ghost River and Waiparous Creek in township 27, range 6, west of the 5th meridian were received in the Department with the result that it was deemed advisable to have a subdivision at this point. Accordingly a request was made to the Director of Surveys to submit a preliminary plan showing the manner in which this area could be laid out for summer residences. A tentative plan was received and approved and instructions were given to proceed with the final plan of survey. A similar request was made in connection with another summer place known as "Crimson Lake Resort" located in township 40, range 8, west of the 5th meridian.

Other requests included surveys for some bible camp sites in the north-east quarter of section 6, township 47, range 1, west of the 5th meridian, on the shores of Pigeon Lake, and also the tying of certain Hudson's Bay posts into the present system of survey. These posts considerably antedated the township plans and were overlooked when they were made. Other surveys were requested of a more or less varied nature including one of the Pembina River in township 66, range 2, west of the 5th meridian, licensed timber berth No. 6123 in township 49, range 19, west of the 5th meridian and a certain area to be included in the Cooking Lake seaplane base.

This Division has now a complete stock of township plans and during the year a total of 37,200 was received from the Department of the Interior for the records. In addition to these a stock of maps of various descriptions was received including a supply of sectional sheet maps. A very comprehensive supply of maps is now carried and there is a steadily increasing demand for their purchase by personal application from the public generally. Correspondence is also received from far away points making application for maps suitable for those interested in homesteading, prospecting, mining and hunting.

An additional 2,000 copies of the Edmonton Agency map were received making a total to date since the transfer of the resources of 4,000 copies. There appears to be a great demand for this map, chiefly for homesteading purposes. The supply of the Calgary and Lethbridge Agency map was exhausted and accordingly a revised and up-to-date one was prepared and an order placed for 3,000 copies to be made.

Correspondence carried on with the various departments in Ottawa still continues to be heavy. Considerable progress, however, has been made in connection with the unpatented railway rights of way required through school lands by the Northern Alberta Railways Company which were included in the sale of the provincially owned railways. Sufficient information has now been obtained so that the issuance of the notifications can be proceeded with immediately. Correspondence has also been completed with the Surveyor General and arrangements have been made to secure copies of the balance of the railway plans required to complete the records.

A most useful and comprehensive set of soil survey records has been prepared. In these records are included all the reports of the surveys and maps which

have been made both by the Dominion Government and the University of Alberta. A large map of the Province showing by colour the different classifications of the soils provides a key. On the completion of new surveys the map is altered so as to incorporate them in the present system. Homesteaders and the public generally are availing themselves of this service so that a complete knowledge of the land is obtained from this office, thus avoiding, in many cases, the necessity of an actual inspection upon the ground.

There is a general increasing demand for the drafting of maps, plans and sketches and also for mathematical computations of areas from the land agencies and from the various divisions of the Department.

Petroleum and Natural Gas

REPORT OF THE DIRECTOR OF PETROLEUM AND NATURAL GAS, W. CALDER

With the completion of another difficult year for all world industry and commerce, it cannot be expected that any noticeable improvement should have taken place in oil and gas development in Alberta during 1933. A slight return of confidence, however, appeared early in the summer but as this was principally limited to section 28, township 18, range 2, west of the fifth meridian (south end of Turner Valley), the work undertaken cannot be classed as new development and must be termed extension work of a proven area. Outside of the Turner Valley, preliminary construction has been started at two locations in the foothills. At both of these the surface geological and topographical indications are sufficiently promising to warrant the forecast that, subject to no adverse geological conditions at depth, these tests should open up new oil producing areas which will considerably extend both north and south the productive belt in the foothills.

In other parts of the Province development and prospecting still mark time but with a return of confidence in the foothills belt such confidence it is anticipated will also eventually extend to other districts where oil has been proven.

In the Duvernay area a test was commenced in late autumn, but work had to be suspended during the winter on account of severe weather. Drilling has again been resumed and it is anticipated that definite results will soon be available. The locality of this test being close to the Duvernay well, drilled during 1930, should confirm the promising thickness of oil bearing formation proven in the latter. Unfortunately, as in the drilling of the Duvernay well, the rotary system of drilling has been adopted and it is feared that the hydrostatic pressure of the drilling fluid will force the oil back into the formation and unless a prolonged production test is made the results may be insignificant and misleading.

It is necessary to record that the foregoing three areas of new prospecting are nearly all controlled by leases issued under provincial regulations.

After a long period of drilling, the Ranchmen's Gas and Oil Company's No. 1 well at Aldersyde would appear to be nearing productive formation, the depth at March 31st being 6,260 feet where encouraging indications of gas were encountered. The management of the Company has to be congratulated for its courage and persistence in continuing this drilling against great odds, the principal of these being lack of finances and uncalled for adverse criticism.

The latter would appear to be solely due to an absence of favourable geological outcrops in the intervening area extending west from the well to the foothills, the critics apparently having failed to appreciate that the great pressure which caused the vast underground overthrust of formation at the Turner Valley must also have had certain effects on the underground formations to the east of that area where considerable minor folding may be discovered when the district to the east is prospected by deep drilling. The location of such hidden folds will be an impossible problem from surface outcrops and failing success with some form of scientific apparatus there remains only one sure method to give true information on underground conditions—that is by chance drilling similar to the manner in which the Ranchmen's well was located. Prospecting in this way is however highly speculative and few if any advisers will risk reputations for such wildcatting ventures.

Exploration of the Aldersyde-Turner Valley area can only, therefore, be expected to be done by persons prepared to venture and by doing so they may be fortunate enough to make welcome discoveries which will give a definite lead and prove a real incentive to those who have faltered.

For several years the potentialities of the Aldersyde area have been favourably considered by the divisional staff who, while appreciating the depth to which wells would have to be drilled, were sanguine that favourable oil and gas indications would be encountered. Confirming their views, a memorandum and sectional plan prepared by Mr. Owen during 1932 but not made public until now have been attached to this report in Exhibits D and E.

Although the demand for gas in the Province has maintained approximately the same consumption total as in previous years, there has been no new development to discover reserves of gas. It is, therefore, presumed that the operators of gas wells are satisfied that the latter are in good condition—also that there are ample reserves for all requirements that may arise.

Owing to a depleted staff and limitations of expenditure, the usual annual inspections of gas wells by the divisional staff had to be omitted during 1933 and the only information available respecting the condition of wells is that submitted by operators. As the latter are liable to omit essential details re defective wells, an endeavour will have to be made to continue the annual inspections by the Division. Such inspections may interfere with routine work but all efforts will be made to minimize delays that may occur.

The gross annual production during 1933-1934 of all classes of oil amounted to 1,141,473 barrels of thirty-five imperial gallons, an increase of over 24% as compared with the quantity recovered during 1932-1933. The increase is mainly due to the completion of four new wells in the Turner Valley, also a greater recovery of naphtha since the absorption plant in that area has been in operation. Without these conditions it is estimated that the total oil production would only have been 656,281 barrels or a decline of 39% on the 1932-33 total.

The foregoing amply confirms the necessity of continuous exploration and development to maintain oil production and it is hoped that sufficient incentive will materialize to encourage operators to put forward every effort to develop new areas.

During the first part of the year, production dropped rapidly and it was only on completion of the absorption plant that an improvement occurred. Results at this plant, erected by the Royalite Company and designed for a daily through-put of seventy-five to eighty million cubic feet of gas, have proved so satisfactory and remunerative, that extensions have already been added and it is rumoured that a second plant of a similar capacity is projected for erection at the south end of the Turner Valley.

The processing of the gas is done entirely without mechanical aid, the only mechanical appliances used in the operation being sundry pumps which are required in the rectifying plant for pumping the recovered naphtha and the regenerated absorption oil into tanks. It is, therefore, assumed that the designers have relied on the well pressure remaining sufficiently high enough for some time to come to propel the gas through the absorption towers, fractionating plant and scrubbers and thence to points of consumption. However, should mechanical boosting be required at a later date, there is ample space adjoining the new erection to permit the installation of any auxiliary plant required. Photographs of the plant were included in the annual report for 1932-1933.

The main features of the present plant are as follows:—

(1) Four standard separators to remove all possible naphtha before the gas enters the absorption towers;

(2) Three absorption towers five feet by fifty feet high;
(3) Four separators to remove any absorption oil that may pass through with the stripped gas from the absorption towers;
(4) Rectifying plant for removing naphtha from the absorption oil and regenerating the latter for re-use.

Although the recovery of naphtha by means of absorption is a slight advance in efficiency there still is dissipated to the air by independents an enormous quantity of recoverable naphtha with the accompanying gas. To this has also to be added wastage of the stripped gas from the absorption plant in excess of pipe line requirements. Apparently no constructive thought has been given to further efficient development, such as improvement in the actual operation of wells and methods to conserve waste gas. Regarding the former, competently supervised effort should have been made to learn if the use of tubing would be beneficial as there appears ample evidence to confirm the theory that the naphtha at the bottom of wells is in a liquid state but not in sufficient head to rise to the surface in the large areas of the producing casings. It is anticipated that properly tubed, the wells, although possibly failing to flow liquid naphtha would at least give a more highly saturated gas with a consequent greatly reduced gas/oil ratio for each barrel of naphtha recovered. With regard to utilization of the waste gas, it is reasonable to assume that the porous zones in the limestone are now sufficiently open to permit the free intake of injected gas, in which case the latter would not only accelerate the movement of naphtha to the bottom of producing wells but would also ensure storage of the gas for future requirements. It is admitted that a plant capable of repressuring one hundred million cubic feet of gas per day would necessitate an expenditure in the neighbourhood of $5,000,000.00 but the results which would accrue from this investment, although deferred, would present a considerable profit not only from an increased recovery of naphtha but also in the conservation of gas for future needs.

The authority of the Turner Valley Gas Conservation Board having ceased during the month of February, 1933, supervision of well productions reverted to the Division on the basis that permitted withdrawals of gas should not exceed a total of 240 million cubic feet per day and that the operating regulations be altered to allow of withdrawals being raised from 25% to 40% of the estimated open flow volume. Due to no full open flow volume tests having been made officially at any well, it was found necessary to adopt an empirical method for arriving at the open flow volume. This was obtained by taking the volume for each well at two-thirds of the closed in pressure shown in the Turner Valley Gas Conservation Board's report, and correcting this figure to a gross and on the latter allotting forty per cent. Due to even this allocation preventing a few wells being operated, certain slight concessions were made. By the method outlined above the permitted withdrawals amounted to 239,345,000 cubic feet. Later in the year further allowables had to be added from time to time as new wells were completed. Due to these conditions the total authorized withdrawals at the end of the year amounted to 283,401,000 cubic feet per day, against which the average daily withdrawals during the twelve months counting from April, when the first orders were communicated to the operators, amounted to 275,524,000 cubic feet per day.

Although a very welcome reduction has been made in the daily waste of gas, there is still ample evidence that further curtailment is imperative and the logical procedure would be to revert to the 25% allowable withdrawal as originally set out in the provincial regulations. Any official suggestion, however, to reduce the percentage would at once renew the hostility of the small independents and also all those now engaged in new drilling work on section 28,

township 18, range 2, west of the fifth meridian and adjoining areas. In as much as the present wastage of gas entails a considerable loss in naphtha to the independents, it is strange that a collective agreement is not arrived at whereby all operators would agree to tube their wells and voluntarily demand a reduction of the allowable gas withdrawals to 25 per cent. In the event of operators failing to make such arrangements the only alternative available would be the full enforcement of Section 28 of the Drilling and Production Regulations so that all wells would be tubed to reduce the gas/oil ratio.

As the majority of Turner Valley gas operators were exceeding their gas quota withdrawals, the requirements of Section 33 of the above mentioned regulations relating to meters were also communicated to all well operators in the Province and to date the majority has fully complied with this order. The exceptions in the Turner Valley were at two wells both of which were closed in and sealed by representatives of the Division. The only other exceptions in the Province where wells are not metered are those operated by the city and manufacturers at Medicine Hat and Redcliff where, owing to a complete shut-down in most industries, a special delay has been granted until such time as work at the factories is resumed.

The operators of the Widney and Sioux City wells verbally asked for authority to open the casings in their wells opposite known crude horizons. These requests were made as the naphtha production from the limestone had declined and was non-remunerative. The applicants expressed the desire to be allowed to leave the limestone formation open so that the gas would be available for elevating the crude oil. These requests, however, were not authorized as the sulphur content in the limestone gas would not only contaminate and reduce the value of any crude oil obtained but would also, being under greater pressure than that anticipated in the crude oil horizons, tend to force back the oil into the formation and prevent full recovery. As a result of this decision both companies had to agree to the specification outlined by the Division and completely cement off the limestone formation. The Widney Oils met with considerable success and for some time have attained a daily output exceeding fifty barrels of high grade oil.

With regard to the Sioux City, this company did not make a prolonged test at any of the horizons noted during the drilling of the well and were forced therefore to salvage the casing and abandon the location.

The management of the Okalta Oils also made a similar request as above and on learning that the limestone formation had to be completely cemented off relinquished its application.

At the Dome No. 2 well, production having declined to a negligible quantity while considerable gas was being blown unnecessarily into the atmosphere, the company was communicated with respecting its intentions. No satisfactory answer being received to repeated communications, instructions were issued to the divisional engineer to close and seal the well, due notice having been sent to the company that this was being done. Shortly after the well was sealed the company's management intimated its desire to plug the well back as had been done by the Widney and Sioux City wells.

It is a regrettable fact that operators of crude oil wells in the Turner Valley apparently fail to appreciate that the oil contains a considerable quantity of wax, also that the oil carrying formation is a very compact sandstone, conditions which both preclude a long productive period in any oil well unless it is continuously cleaned out to remove the wax accumulation and persistent efforts made to break up the oil sand to permit a free flow of oil. Unfortunately, trained assistance, experienced in combating similar production difficulties, has never been available, with the result that crude oil wells operated to date have rapidly declined

in output and in all cases have been abandoned without any attempts being made to overcome the waxing or other impediments which prevent the oil inflow.

A continuation of the Turner Valley well testing, which was initiated in 1931 and carried on by the Turner Valley Gas Conservation Board in 1932, was all that was possible in this particular branch of the work by the divisional staff during the year. Tests under the Board's supervision having been made over a period ending in November, 1932, similar ones were accordingly made during the following September to coincide as nearly as possible with those previously carried out. As all wells could not be tested simultaneously the Valley was sub-divided into areas so as to permit of the work being carried out expeditiously. All operators having been warned beforehand of the exact date when their wells would be tested, no delays occurred and the work proceeded satisfactorily. It is necessary to record that this was made possible by the welcome co-operation and assistance of the operators and their field staffs. The friendly attitude met with now amply confirms the view previously held that the benefits of accurate data and efficient control, when known, would be fully appreciated by all concerned.

The tests showed that there had been a marked decline in pressure over all the older producing wells and that if excessive withdrawals of gas were continued the pressure at these wells would within a measurable time be reduced to 400 pounds, the estimated useful pressure required to transmit the gas to points of consumption without mechanical means. Taking the field as one area, the decline in pressure between November, 1932 and September, 1933 was 130 pounds, the November pressure being 1,010 pounds and that for September 880 pounds. A very close control having been made of the gas withdrawals during the period, it was found that for each 100 pound drop there had been a gas withdrawal of 54,900 million cubic feet and that the average decline for the field amounted to .45 pounds per day, which may be regarded as advance evidence that the efforts to attain efficiency are having beneficial results.

It is difficult to forecast the control necessary for low pressure wells as these are all owned by operators who lack financial reserves for purchasing the required mechanical equipment when the wells reach the lowest useful well pressure of 400 pounds. It is possible owing to the naphtha content being greater than in more recently drilled wells that those showing a low pressure will eventually be taken over by the Royalite Company which would be able to install the necessary equipment for raising the liquid product. Rumours have been current that negotiations for such well transfer were in progress but so far the only official information that agreements have been completed refer to the Alberta Pacific Consolidated, New McDougall-Segur and the Commonwealth.

During the year further small refining units have been erected contiguous to oil producing wells. In all cases these erections are limited in capacity, are very crude and inefficient in construction and for this latter reason present a continuous fire hazard to life and property. It is, therefore, suggested that refinery and similar processing constructions be prohibited on known oil productive land and that the locations be at not less than one mile from any productive well.

Ever since the inception of local sales of naphtha at the Turner Valley great danger to travellers generally has been created, not only on highways leading from the Valley, but on routes far distant from the point of production. Repeatedly, serious accidents have occurred resulting in complete destruction by fire of the vehicle and contents, but so far apparently there has been no loss of life. When these local sales were first initiated the purchasers were farmers who bought only in loads of a few barrels of naphtha for their own needs. These farmer purchasers have now been wholly superseded by dealers and transport contractors who convey their loads to remote parts of the Province

and even to Saskatchewan and British Columbia, thereby intensifying the hazard of road travel over a very extended area. Latterly a very dangerous form of tank vehicle has been adopted, which, being very wide, is therefore a constant menace to the travelling public, particularly at narrow bridges. The persistence of the drivers in seldom deviating from their course for oncoming traffic constitutes an additional risk. Possibly this apparent selfishness is due to the heavy loads carried and the fear of drivers that the vehicles will slide off the road. The danger is continuous and ever increasing and demands a regulation which will protect the safety of the public not only in the oil field area but all over the Province.

The foregoing may appear a digression and it is therefore necessary to state that although the reasons for local sales were originally commendable and beneficial to individuals, the practice has now reached formidable dimensions and created intensified road hazards. It is suggested that as naphtha must be classed as a dangerous product when being conveyed on public roads, such road haulage should only be permitted under special license permit, the dimensions and weight of tanks to be limited to a safe travelling capacity and vehicles required to always present daylight distinguishing danger marks and lamps at night-time. Finally that the sale of the product at the well should only be permitted through acceptable and controlled metering apparatus.

The further deepening and completion of Miracle No. 2 well, Turner Valley, having been carried out during the year, it is necessary to record that during the first three months of production a considerable quantity of water was expelled with the wet gas. At first the oil recovered was of a gravity in the crude oil series but as the quantity of water decreased the product changed to naphtha thereby tending to prove that naphtha bearing zones in the limestone had been inundated by the rotary drilling water. This evidence is of great importance and may account for the negative results obtained in other rotary drilled wells when these passed through known oil bearing horizons, and justifies the recommendation that the use of rotary equipment for drilling through known oil bearing formation be prohibited or that such formation be thoroughly checked by prolonged bailing tests.

In connection with and further confirming the foregoing danger, there has to be cited the rotary drilled test at Two Hills where despite several oil carrying sands extending from 1,599 to 1,986 feet and approximating a total of considerably over fifty feet, no oil was obtained after a short test and the location was abandoned.

In the annual well test reports, submitted by the city of Medicine Hat, further evidence was obtained to prove that gas pressure at most wells in that area showed an appreciable increase, amounting to 67 pounds since 1930. From 1920 to 1930 the area decline in pressure ranged from 3 to as high as 26 pounds per annum. This decline and other very evident dangers were brought to the notice of city officials during 1927 and 1928 but it was only during 1929-1930 that any action was taken to carry out the suggested protection measures made by members of the present Petroleum and Natural Gas Division's staff.

Since the inception of provincial control, these efforts for safety and efficiency at Medicine Hat have been continued with the result that the majority of defective wells has been repaired, new wells drilled on locations selected by the divisional staff and the city pipe line distributing system overhauled. The increase in area pressure and other well conditions at Medicine Hat conclusively proves that the efforts of the Division to obtain true conservation by efficient engineering has benefited this district and prolonged the gas producing life of the field considerably.

From past inspections of the Viking gas field and from the Northwestern Utilities Company's annual report for 1933 it is very evident that water intrusion through defective casings may also be curtailing the useful life of the wells in this field and similar methods of protection as those recommended for Medicine Hat may have to be enforced after the forthcoming annual inspection tests.

On account of the operator and leaseholder (Western Consolidated Oils Limited) of the area on which Onalto Oils, Limited, No. 1 well was drilled, having ignored repeated requests for the payment of rentals and royalties, it was found necessary to take possession of the well and equipment. The well was accordingly taken over by the Division during 1933 since when the leaseholder has been given every opportunity to obtain possession subject to the indebtedness to the Department of Lands and Mines being fully liquidated. Up to the end of March those interested had failed to make full payment. In the meantime the well is being operated under divisional supervision. The oil obtained is limited in quantity—15 barrels per day—but is water free and of a gravity superior to that hitherto obtained in the Wainwright area.

The attitude of the Onalto principals is typical of the indifference shown by the majority of leaseholders and operators, not only at Wainwright but in other parts of the Province, to developing the resources. With regard to oil development, the chief causes which appear to delay progress, particularly at Wainwright, would seem in the past to be lack of adequate refining facilities. This deficiency, however, no longer applies as a refinery of 300 to 400 barrels capacity has just been completed and owners of wells with oil have an outlet available for their product. Other reasons for non-development are the blanketing of considerable areas of land by speculators without capital who have prevented bona fide operators developing the land except at exorbitant royalty rates and in some cases cash premiums. Finally there is the regrettable condemnatory attitude of investigators who, failing to find satisfactory outcrops of formation or oil seepages, give no thought to the high elevation above sea level of most of the Province, ignoring the fact that all formations are masked by glacial drift underlain by impervious beds of low dipping shales together with the common present day delusion that no oil area can have potentialities unless the initial well outputs are spectacular. The widespread evidences of oil in Alberta require no dilating. With regard to the possibilities of small outputs per well there is ample proof that these can be profitably developed but to realize success it is necessary that the work be supervized by competent and unselfish personnel.

Phenomenal well productions favour the incompetent as mistakes or accidents arising through inexperience can always be blamed to extraordinary conditions but where it is a question of obtaining revenue from small producing wells, it is only those with experience in such work, who can hope to be successful.

The future of oil development in this Province is vital to the welfare and progress of Alberta and the adjoining prairie provinces and any failure of those interested in leases, etc., to develop this proven natural resource will be indicative that selfishness and greed still predominate despite the lessons which have been so convincingly taught by the depression demonstrating the cause of present world chaos.

During the annual tests of the Viking gas wells by the operator, it was only possible for those to be partly witnessed by the divisional representative who had to be recalled before they were completed, the tests being unduly and unnecessarily prolonged owing to the Hudson's Bay Oil and Gas Company having requested an extensive blowing of all wells, presumably in an endeavour to obtain an improved gas/ratio for their two wells located on alienated land.

Extensive blowing of any gas well is contrary to the practice of the Division, the reasons being that this not only entails considerable waste but is liable to intensify water migration from wet wells to dry wells. It is admitted that possibly refined and more accurate volume and pressure data are obtained by such action but when the enormous waste of gas is taken into consideration such refinement of data does not appear justified. Very complete tests for volume and pressure having been carried out at the Viking wells during 1932, at which representatives of the Hudson's Bay Oil and Gas Company participated, it is strange that the company should desire a repetition of the work with the accompanying great waste of gas.

During the Viking tests, many of the wells appear to have shown excessive moisture and information has been received from the management that the wells most affected would be repaired. It is known that the Gas Company personnel favour the theory of edge water inundation in the gas horizon. This theory, however, does not appear tenable owing to the comparative flatness of the strata beds. Most of the present productive wells have been in use many years and having been drilled without adequate cementations the casings must in many of the wells be seriously corroded similar to what has been proven was the cause of water trouble at Medicine Hat. It is, therefore, reasonable to assume that the presence of water in the Viking wells is solely due to water finding ingress through defective casings.

During the year a special inspection had to be made of developments carried out by the International Bitumen Company near the Athabasca River at approximately sixty miles north of McMurray. Occasion was taken to make a hurried survey of the bituminous sand outcrops, also of the different places where attempts had been made to explore the sands by well drilling.

Information regarding the deposits of bituminous sands having been very thoroughly detailed in publications issued by the federal Department of Mines, further reference appears unnecessary.

At all of the places where drilling had been attempted there were many evidences that in most cases the drilling equipment used in the testing had been too light in construction for exploratory work, also that no effort appears to have been made at any well to exclude water at depth. These test well sites, however, are widely separated and the liquid product of the sands being very viscid any detrimental effects from faulty water shut offs will be limited in area.

From observations noted at many points where formation outcrops were seen, the bituminous sand deposits are underlain by limestone, the surface of the latter having many small folds limited in uplift but sufficient in height to permit of considerable depressions between individual folds. At such depression points it was also noted that greater saturation of the sands was apparent. Confirming this, where wells had been drilled in depressions of the limestone, there was considerable weathered bitumen at the surface surrounding the well orifice. Further confirmation of such increased saturation was learned from the logs of the several shallow wells drilled by the International Bitumen Company all of which had to be abandoned at shallow depth on account of the impenetrability of the bitumen at the well bottoms. From these evidences it has been concluded that semi-liquid bitumen can be produced from drilled wells subject to these being sufficiently large in diameter to permit the installation of some form of mechanical elevator as the bitumen is too glutinous to be elevated by means of ordinary deep well pumps.

Having failed to economically extract from the drilled wells the semi-liquid bitumen, the International Bitumen Company abandoned all well drilling and concentrated on the production of bitumen by processing the sand, the procedure being to remove the bitumen by means of hot water in horizontal separators

and pug mills. On the authority of the management it was learned that approximately 15 per cent to 30 per cent of clean bitumen was recovered. An examination of the treated sand showed that although considerable discolouration remained the sand had to be classed as comparatively free from bitumen.

International Bitumen Company's sand quarry and processing plant

On the left of the above photograph is marked the area from which the raw sand is drawn. Excavation is accomplished by drag-line bucket, which facilitates, as the sand body becomes deepened, the noting of increasing bituminous saturation.

Indications of other operations to develop the bituminous sands were noted on the north bank of the Clearwater River nearly opposite Waterways. Here the Research Council of Alberta erected an experimental plant for processing the sand which was excavated from an adjoining area where the overburden had been removed. From the appearance of the plant it was evident that operations had been suspended for a considerable time.

Clearwater experimental plant erected by the Research Council of Alberta

Adjoining the railway at Draper, much of the sand body frontage has been removed. All of the excavated sand was apparently loaded on rails and forwarded in its crude state to distant points of the Province and beyond. During inspection a small quantity of the sand was being loaded on rail cars for forwarding to Medicine Hat.

Opencast working at Draper

The remaining bituminous sand development visited was that close to Waterways where experimental work was carried out by the Bituminous Sand Extraction Company. The experiments would appear to have been centred on ignition of the bitumen at the bottom of the shallow drilled wells. A certain amount of success was apparently realized but from the burnt appearance of several casing pipes found at the site of one of the test wells it was evident that the combustion of the bitumen created an intense local heat which must have destroyed all the volatile hydrocarbons *in situ*. The localization of the heat was seen at the site of a well where the cliff face had been cut down. This

Sectional opening of well—Bituminous Sand Extraction Company

apparently was done to open the well sectionally to obtain information on the heat penetration, which however was very limited. All equipment and materials had been removed from the area and no work was in progress.

The principal data on oil and gas operations in the Province during the fiscal year appear in detail in Exhibit A of this report.

In conclusion it is necessary to record with pleasure that all members of the limited divisional staff have willingly and energetically carried out the many arduous duties which the work of the Division demands and further that every effort has been made to promptly advise and assist operators, particularly in the many engineering difficulties encountered during the drilling of wells.

Exhibit A.

Oil Production for Fiscal Year

Barrels of 35 Imperial Gallons

1.

Turner Valley, naphtha	1,082,816 bbl.
Turner Valley, light crude	26,078 "
Red Coulee, light crude	27,246 "
Wainwright, heavy crude	4,609 "
Sundry production	724 "
TOTAL	1,141,473 bbl.

TOTAL OIL PRODUCTION IN PROVINCE SINCE 1925

Calendar Year	Naphtha	Light Crude	Heavy Crude	Totals
1925	165,717	2,926	.....	168,643 bbl.
1926	211,008	2,609	5,981	219,598 "
1927	290,270	38,808	3,055	332,133 "
1928	410,623	70,734	8,174	489,531 "
1929	908,741	73,808	16,603	999,152 "
1930	1,314,039	104,462	15,343	1,433,844 "
1931	1,345,689	92,002	17,504	1,455,195 "
1932	854,116	56,571	6,935	917,622 "
January 1st to March 31st, 1933	192,093	13,873	1,842	207,808 "
Fiscal year ended Mar. 31st, 1934	1,082,816	54,048	4,609	1,141,473 "
TOTALS	6,775.112	509,841	80,046	7,364,999 bbl.

2. VALUE OF PRODUCTION, 1933-1934

Naphtha	1,082,816 bbl. at	$2.62	$2,836,977.92
Light crude, Turner Valley	26,078 " "	$2.50	65,195.00
Light crude, Red Coulee and other areas	27,970 " "	$1.10	30,767.00
Heavy crude	4,609 " "	$1.00	4,609.00
TOTAL			$2,937,548.92

3. OIL PRODUCING WELLS IN PROVINCE

	Producing	Shut in	Total
Turner Valley—naphtha and gas	90	3	93
Turner Valley—light crude only	8	....	8
Red Coulee—light crude only	6	....	6
Wainwright—heavy crude	3	4	7
Skiff—heavy crude	....	1	1
TOTAL	107	8	115

4. GAS WELLS NOT INCLUDED WITH NAPHTHA PRODUCING WELLS

	Producing	Shut in	Total
Medicine Hat	46	....	46
Bow Island	....	11	11
Foremost	....	6	6
Milk River area	1	2	3
Viking	23	....	23
Kinsella	....	3	3
Fabyan	2	....	2
Brooks	5	....	5
Wetaskiwin	1	....	1
TOTAL	78	22	100

FOOTAGE DRILLED IN WELLS

Turner Valley area	65,773
Other areas in Province	16,600
TOTAL	82,373

6. TOTAL YEARLY WELL FOOTAGE DRILLED IN PROVINCE SINCE 1927

1927	84,966 feet
1928	190,288 "
1929	414 757 "
1930	295,752 "
1931	127,243 "
1932	40,492 "
1933	82,373 "

7. OIL IMPORTS TO ALBERTA

1931	1,323,826 bbl.
1932	1,090,464 "
1933	1,266,161 "

8. GAS CONSUMPTION IN ALBERTA

Calendar Year		Estimated value at two cents per M.c.f. at well mouth*
1927	12,621,857 M.c.f.	$252,437.14
1928	14,198,959 "	283,979.18
1929	23,228,637 "	464,572.74
1930	23,312 006 "	466,240.12
1931	18,327,139 "	366,542.78
1932	6,144,265 "	122,885.30
January 1st to March 31st, 1933	16,061,383 "	321,227.66
Fiscal year ended March 31st, 1934	16,346,376 "	326,927.52

*M.c.f.—Thousand cubic feet.

9. GAS REPRESSURING BOW ISLAND FIELD

The quantity of Turner Valley waste gas injected into wells of the above area totalled at the end of March, 1934, 6,055,111 M.c.f. At the commencement of repressuring, the field pressure averaged 248 lbs. per square inch; this had been raised to 451 lbs. per square inch at the end of the fiscal year.

10. 1933 GAS WELL PRESSURES IN LBS. PER SQUARE INCH

	Greatest	Lowest
Turner Valley	1,690	535
Medicine Hat, average	412	
Redcliff	405	
Bow Island	430	
Foremost	583	
Barnwell	241	
Range Oil and Gas Company	1,030	
Brooks	354	175
Viking	615	
Kinsella	754	

11. DIVISIONAL INSPECTIONS OF WELLS

Special	188
General	842
Gas measurements	1,571
TOTAL	2,601

Special journeys by the Director of the Division, in addition to the above, totalled sixty days absence from Edmonton.

12. DIVISIONAL GEOLOGICAL EXAMINATIONS OF WELL SAMPLES

1932-33	3,998 samples examined
1933-34	7,373 " "

CHEMICAL ANALYSES

Water	12
Oil	10
Gas	2
TOTAL	24

Exhibit B.

STATEMENT OF TURNER VALLEY ALLOWABLE WITHDRAWALS OF GAS AS INTIMATED TO OPERATORS, APRIL 3rd, 1933

	Cubic feet.		Cubic feet.
Albertan Federated	725,000	Dalhousie No. 7	3,406,000
Alberta Pacific Consolidated No. 1	264,000	Foothills No. 1	4,200,000
Alberta Pacific Consolidated No. 2	850,000	Foothills No. 2	1,744,000
British Dominion No. 2	1,496,000	Mayland No. 1	3,843,000
British Dominion No. 3	1,021,000	Mayland No. 2	2,811,000
Calmont No. 2	7,104,000	Mayland No. 3	1,324,000
Calmont No. 4	259,000	Mayland No. 6	8,292,000
Calmont No. 7	696,000	Royalite No. 6	5,876,000
Canada Southern (Regent) No. 1	709,000	Royalite No. 12	627,000
Canada Southern (Regent) No. 3	1,320,000	Royalite No. 8	3,009,000
Commonwealth Petroleums No. 1	3,098,000	Royalite No. 11	12,024,000
East Crest No. 1	718,000	Royalite No. 20	381,000
East Crest No. 2A	5,605,000	Royalite No. 9	1,196,000
East Crest No. 3	3,579,000	Royalite No. 13	233,000
Freehold No. 2	2,600,000	Royalite No. 18	6,480,000
Hargal Oils, Limited	589,000	Royalite No. 14	2,173,000
Homestead Oils, Limited	938,000	Royalite No. 16	437,000
Hylo Oils, Limited	5,170,000	Royalite No. 17	7,200,000
McLeod No. 1	877,000	Royalite No. 19	4,009,000
McLeod No. 2	1,433,000	Royalite No. 21	1,099,000
McLeod No. 3	1,921,000	Royalite No. 23	4,865,000
McLeod No. 5	1,468,000	Royalite No. 24	1,896,000
Mercury No. 1	12,942,000	Royalite No. 25	1 379,000
Mercury No. 2	2,000,000	Southern Lowery No. 1	509,000
Mercury No. 3	3,000,000	Southern Lowery No. 2	4,536,000
Midfield No. 1	2,748,000	Southern Lowery No. 3	5,917,000
Mill City Oils, Limited	90,000	Southwest Petroleums No. 1	946,000
Miracle No. 1	3,650,000	Advance Oils No. 5A	1,623,000
Miracle No. 3	2,600,000	Associated Petroleums No. 1	2,198,000
Model No. 1	1,710,000	Associated Petroleums No. 2	2,304,000
New McDougall-Segur No. 2	1,736,000	Baltac Oils No. 1	1,190,000
New McDougall-Segur No. 3	412,000	Home Oils No. 1	5,787,000
New McDougall-Segur No. 4	891,000	Home Oils No. 2	4,026,000
Okalta No. 1	3,625,000	Home Oils No. 3	9,876,000
Okalta No. 2	3,353,000	Home Oils No. 4	3,293,000
Okalta No. 3	1,446,000	Home Oils No. 5	1,183,000
Richfield Petroleum No. 1	1,300,000	Lowery Petroleums	4,140,000
Sioux City No. 1	520,000	Merland Oils	9,690,000
Spooner Oils No. 4	1,419,000	Sterling Pacific No. 1	499,000
Structure Oils, Limited	2,025,000	Sterling Pacific No. 2	5,245,000
Wellington Oil and Gas Company	8,375,000		
Dalhousie No. 1	1,200,000	TOTAL	239,345,000
Dalhousie No. 6	397,000		

Exhibit C.

WELLS COMPLETED DURING THE FISCAL YEAR OR STILL IN COURSE OF DRILLING AT ITS CLOSE

TURNER VALLEY

NAME	*Location	Drilling Started	Drilling Finished	Depth March 31, 1934	REMARKS
Anaconda No. 2	15 of 28-18- 2-w. 5	28-12-32	6- 2-34	5,548	Completed: gas and naphtha.
Bow No. 1 (Illinois-Alberta)	14 of 12-20- 3-w. 5	1914	.....	3,889	Attempting to deepen.
British Dominion No. 4	6 of 28-18- 2-w. 5	13- 3-34	.....	270	Drilling.
Century Royalties No. 1	14 of 28-18- 2-w. 5	10- 2-34	.....	2,779	Drilling.
Director Royalties No. 1	16 of 28-18- 2-w. 5	8- 2-34	.....	2,480	Drilling.
Highwood Sarcee No. 1	16 of 21-18- 2-w. 5	19- 9-33	.....	5,200	Obtained good light crude production but continuing to limestone.
Hoffar Lundy No. 1	13 of 22-18- 2-w. 5	15- 3-33	.....	4,300	Suspended 17-11-33.
Livingston No. 1	5 of 24-18- 2-w. 5	3-12-30	.....	2,880	Suspended 13-9-33.
Longview N.W.C. & E. No. 1	5 of 27-18- 2-w. 5	21-10-33	.....	5,200	Drilling.
Marjon No. 2	10 of 28-18- 2-w. 5	10- 7-33	14- 3-34	5,870	Testing. Appears to be a small to medium naphtha producer.
McLeod No. 1	16 of 1-20- 3-w. 5	10-10-23	8- 7-33	4,107	Was deepened 137 feet during year.
Midfield No. 1	9 of 1-20- 3-w. 5	15- 3-29	22-11-33	4,252	Was deepened 47 feet during year.
Miracle No. 2	16 of 5-19- 2-w. 5	21-12-30	21- 9-33	6,723	Completed: gas and naphtha.
Model No. 2 (Anaconda No. 1)	16 of 22-20- 3-w. 5	28- 8-29	29- 8-33	6,539	Completed: gas and naphtha.
New McDougall-Segur No. 5	11 of 12-20- 3-w. 5	30- 6-30	28- 2-34	3,185	Was deepened with negative results.
New McDougall-Segur No. 6	11 of 12-20- 3-w. 5	9- 8-33	31-10-33	3,270	Completed: light crude producer.
Okalta No. 4	8 of 1-20- 3-w. 5	25- 7-29	.....	3,060	Deepened from 1,664 during year.
Pacalta No. 1	7 of 28-18- 2-w. 5	29- 5-33	.....	4,788	Drilling.
Publix No. 1	8 of 28-18- 2-w. 5	11- 7-33	.....	2,007	Drilling.
Richfield Royalties No. 1	5 of 28-18- 2-w. 5	11- 3-34	.....	440	Drilling.
Spooner Anaconda No. 1	1 of 28-18- 2-w. 5	25- 9-33	.....	4,665	Drilling.
Spray No. 1	9 of 5-19- 2-w. 5	11- 6-29	.....	3,795	Drilling.
Sterling Royalties No. 1	1 of 33-18- 2-w. 5	11- 7-33	5-12-33	5,657	Completed: gas and naphtha.
Sunburst Midroyal No. 1	14 of 28-18- 2-w. 5	1- 8-33	.....	1,660	Suspended 20-10-33.
Union Drilling No. 1	8 of 21-18- 2-w. 5	15- 3-33	.....	2,750	Suspended 7-12-33.

FOOTHILLS NEAR TURNER VALLEY

Elbow	11 of 35-22- 5-w. 5	9- 4-29	.....	4,164	Drilling. Resumed 6-12-33.
Graystone	9 of 34-23- 5-w. 5	1- 7-26	.....	1,706	Redrilled from 1,245 and suspended 8-11-33.
Paramount	28-19- 4-w. 5	20- 6-29	.....	2,760	Suspended.
Pekisko Hills	6 of 6-17- 2-w. 5	31- 1-34	.....	140	Drilling.

Athadome No. 2	3 of 15-66-23-w. 4	20-10-32	.....	2,504	Suspended 20-10-33. Found oil at 1,650.
Beaumont No. 2	10 of 30-45- 7-w. 4	4-11-29	.....	2,304	Suspended 14-9-33 after deepening 94ft. during the year.
Calgary Power-Lacombe No. 3	19-40-26-w. 4	1- 5-33	26- 5-33	301	Water well.
Devonshire No. 1	4 of 10- 1-16-w. 4	18- 4-30	24- 6-33	2,522	Abandoned.
Frontier Brosseau No. 1	8 of 36-55-12-w. 4	26-10-33	.....	101	Preparing to resume after winter shut-down.
Gailey No. 1	1 of 35-19-20-w. 4	30- 5-33	24- 6-33	170	Abandoned.
Grey Bros. No. 3	1 of 32-25- 2-w. 5	26-11-32	3- 5-33	250	Suspended. Water well with non-combustible gas.
Hunter Valley No. 1	16 of 14-31-10-w. 5	20- 5-33	.....	2,115	Drilling.
Kotop No. 1A	1 of 2- 1-17-w. 4	29- 6-30	16-11-33	2,646	Abandoned.
Nordon Twin River No. 2	12 of 2- 2-20-w. 4	28-11-32	.....	3,940	Testing.
Oil City No. 1	16 of 30- 1-30-w. 4	5-10-32	.....	1,540	Suspended 9-12-33.
Ranchmen's No. 1	16 of 13-20-29-w. 4	1- 1-27	.....	6,260	Drilling.
Raven No. 1	1 of 20- 9- 2-w. 5	31- 8-33	.....	84	Suspended.
Rialto No. 1	4 of 15- 1- 9-w. 4	12- 8-33	8- 2-34	3,078	Abandoned.
Weir (Medicine Hat No. 57)	7 of 5-13- 6-w. 4	31- 7-33	.....	770	Incompleted 9-9-33, will drill deeper.

*Figures under this heading represent l.s.d. (legal subdivision), section, township, range and meridian. The first description, Anaconda No. 2 would therefore read l.s.d. 15 of section 28, township 18, range 2, west of the 5th meridian.

Exhibit D.

MEMORANDUM BY R. M. S. OWEN, PETROLEUM AND NATURAL GAS DIVISION
OIL AND GAS POTENTIALITIES IN THE ALDERSYDE AREA.

The Aldersyde area is situated in south-western Alberta about twenty miles south of the city of Calgary. Much of the subsurface geology of this area has been obtained from the log of the Ranchmen's No. 1 well located in legal subdivision 16, section 13, township 20, range 29, west of the 4th meridian, close to the town of Aldersyde and approximately seventeen miles east of the Turner Valley field. After intermittent drilling operations conductd since the year 1917, Ranchmen's No. 1 now represents the nearest well to Turner Valley which, lying within the plains area, has approached to geological horizons known to be productive in the above mentioned foothills' field.

Ranchmen's No. 1 commenced drilling in strata very much younger in age than those exposed in Turner Valley and did not reach the Benton formation in which most Turner Valley wells start until a depth of 4,270 feet had been attained. At the present depth of 6,260 feet geological examination of samples suggests that the well is close to the base of the Benton. An analysis of the gas obtained at this point discloses a very high ethane content hitherto not found in gases occurring in beds of this age and indicating its possible association with heavier hydrocarbons. The analysis of this gas is as follows:

Carbon dioxide	1.4%
Oxygen	0.2%
Methane	71.6%
Ethane	23.0%
Nitrogen (by difference)	3.8%

The sulphur content (20 grains per 100 cubic feet) is far below that found in Turner Valley gases.

Should the well be close to the base of the Benton at this depth the thickness of the latter will not be greatly in excess of 2,000 feet in this area as compared with a thickness of about 2,800 feet in Turner Valley. In the latter field the stratigraphical thickness between the base of the Benton and the top of the Palaeozoic limestone (the main producing strata in that area) is about 1,450 feet. Should a corresponding decrease occur in the thickness of these beds, as appears very probable, the Palaeozoic limestone may be encountered in the Ranchmen's well close to 7,300 feet from the surface, a depth already surpassed by one Turner Valley well.

The nearest will to Turner Valley, situated within the plains, to reach the Palaeozoic limestone was the Hudson Bay Keho No. 1 located in legal subdivision 2, section 17, township 11, range 22, west of the 4th meridian (distant about seventy miles) at which horizon good showings of oil were encountered. Other wells on the eastern limb of the Alberta geosyncline have similarly shown the presence of oil at this horizon while the closer proximity of the Ranchmen's well to Turner Valley may prove a favourable factor should this well reach the Palaeozoic.

However many producing oil sands occur between the base of the Benton and the top of the Palaeozoic in Turner Valley such as the McDougall-Segur, Home, Dalhousie and Brown sands and it is possible the easterly equivalents of these sands in the Ranchmen's No. 1 area may prove equally productive. These sands should be encountered within the next 1,000 feet of drilling. The easterly limit to the lateral extension of the Fernie beds of Jurassic age from the Turner Valley area is at present unknown and much may depend on the presence or absence of these beds in this area since there is evidence to show that beds of this age may be the source of much of the oil in this Province.

Structurally Ranchmen's No. 1 is situated close to the centre of the asymmetrical Alberta geosyncline, a large basin of deposition lying immediately to

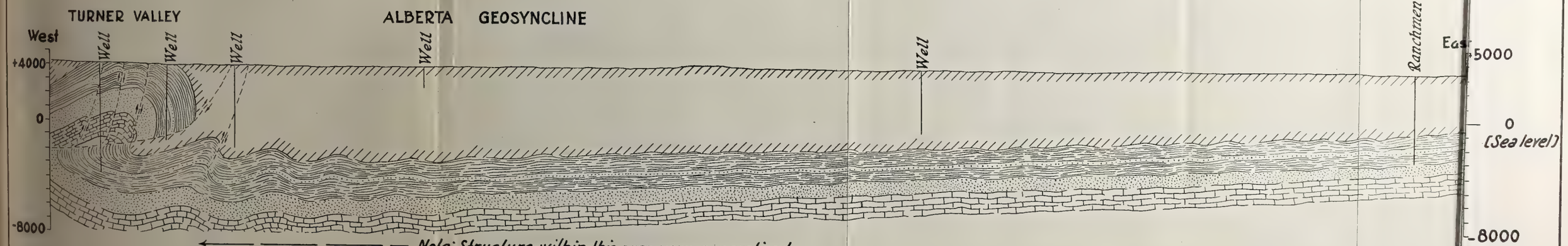
the east of the foothills, the latter, to some extent, being thrust over the former as may be seen from the accompanying geological section. This large overthrust of the frontal part of the foothills on to the plains undoubtedly resulted in the formation of folds within the latter and it is towards the location of these subsidiary structures within the geosyncline that future work should be directed. It is not known how far east of the foothills such disturbances exist or whether Ranchmen's No. 1 is favourably located in this respect. Such facts will possibly be best determined by geophysical means, the varying character of the beds in this general area providing excellent reflection surfaces for waves as generated in the seismic method. Lateral thinning out of porous horizons up the dip which may be expected in this location should prove a favourable factor for the accumulation of oil. Prospecting within this area necessitates very deep drilling but compensation lies in the absence of pronounced irregularities in the geological structure thus leading to less hazardous drilling and the knowledge that all prospective horizons can be encountered.

An interesting fact is that during the drilling of Ranchmen's No. 1 no water was encountered in the many porous horizons penetrated beyond surface water at 24 feet and a small inflow of 5 barrels a day at 3,892 feet. Thus although the Ranchmen's well is located towards the centre of the Alberta geosyncline the facts reveal that the latter is far from being waterlogged and should a similar condition be found to exist in the Palaeozoic limestone it will help to dispel the fear many express of the possibility of approaching edge-water in the Turner Valley field.

In closing it may be stated that some of the world's largest oilfields are located in geosynclinal areas and on subsidiary folds within the latter. However small any evidence of oil in the Ranchmen's well may eventually prove to be, such indications would be of great importance in showing the possibility of oil in commercial quantities occurring in probably more favourable locations within this general area, such locations as already stated, being best determined by means of geophysical prospecting.

October 27th, 1932.

GENERALIZED STRUCTURE SECTION FROM TURNER VALLEY TO ALDERSYDE



Legend

- Post Benton
- Benton
- Blairmore, Kootenay & Fernie
- Palaeozoic limestone
- Banff

Scale of Miles

0 1 2 3 4 5

Department of Lands & Mines
Petroleum and Natural Gas Division
Edmonton, June 30, 1934

Geology by R.M.S. Owen
Prepared Oct. 27. 1932.

TRACING - TECHNICAL DIVISION
DEPT. LANDS & MINES 1935

EXHIBIT E.

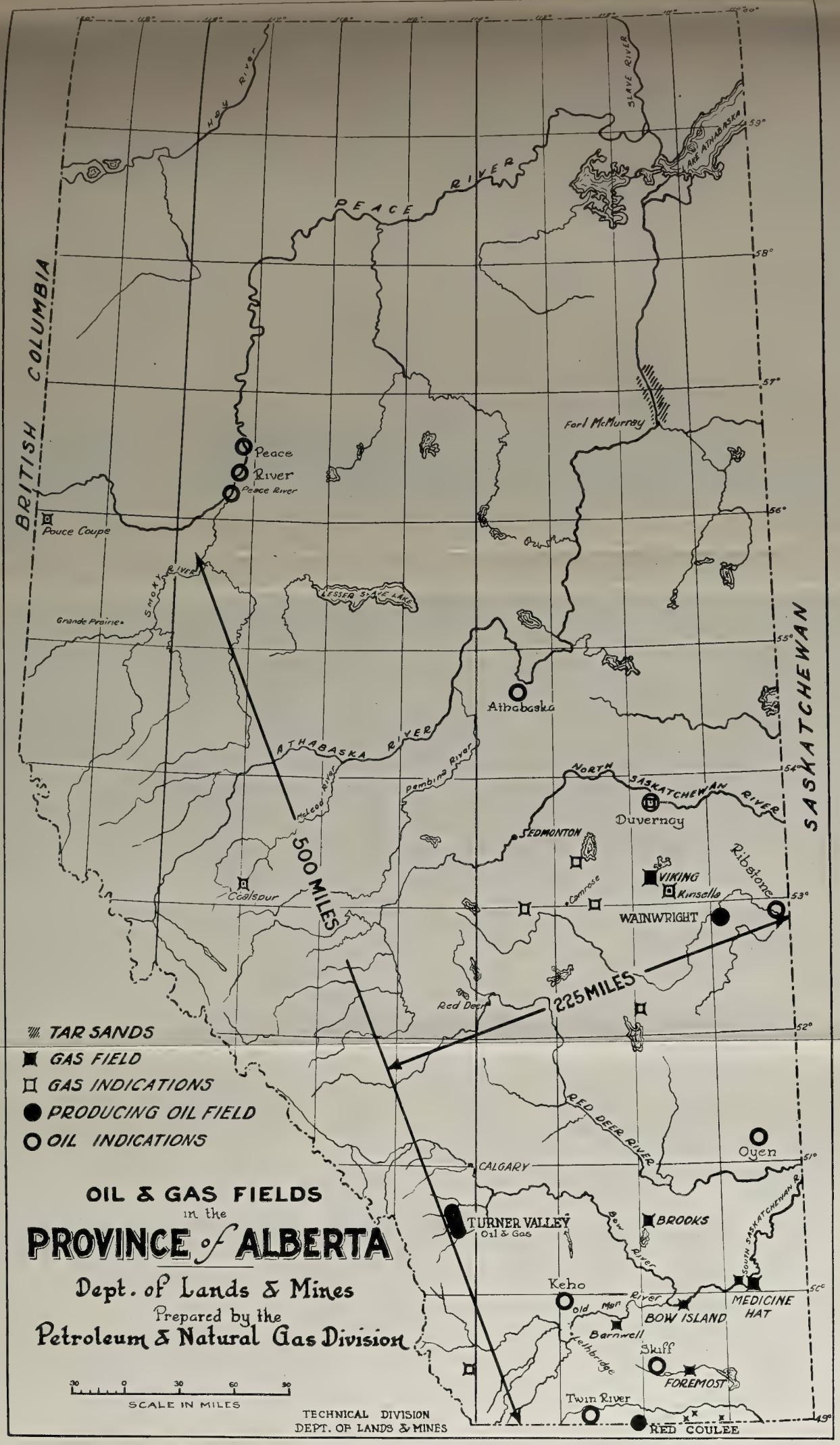

BRITISH COLUMBIA
SASKATCHEWAN
PEACE RIVER
HAY RIVER
SLAVE RIVER
GR. ATHABASKA
Fort McMurray
Peace River
Peace River
Pouce Coupe
SMOKY RIVER
Grande Prairie
LESSER SLAVE LAKE
Athabaska
ATHABASKA RIVER
Pembina River
Mcleod River
NORTH SASKATCHEWAN RIVER
Duvernay
EDMONTON
VIKING
Kinsella
Ribstone
Camrose
WAINWRIGHT
Coalspur
500 MILES
225 MILES
Red Deer
RED DEER RIVER
Oyen
CALGARY
TURNER VALLEY
Oil & Gas
BROOKS
Bow River
SOUTH SASKATCHEWAN
Keho
Old Man River
MEDICINE HAT
BOW ISLAND
Barnwell
Lethbridge
Skiff
FOREMOST
Twin River
RED COULEE
TAR SANDS
GAS FIELD
GAS INDICATIONS
PRODUCING OIL FIELD
OIL INDICATIONS
OIL & GAS FIELDS
in the
PROVINCE of ALBERTA
Dept. of Lands & Mines
Prepared by the
Petroleum & Natural Gas Division
30 0 30 60 90
SCALE IN MILES
TECHNICAL DIVISION
DEPT. OF LANDS & MINES

EXHIBIT F.

Forestry

REPORT OF THE DIRECTOR OF FORESTRY, T. F. BLEFGEN

This report covers the fiscal year ended March 31st, 1934. During the period under review the work of the Forest Service in so far as it was concerned with forestry in its various phases remained as reported for the previous year.

There was, however, an enlargement of responsibility in at least one direction. The Department recognized the necessity of providing for certain sub-agency land office services as almost all of the sub-agencies had been abolished. It was, therefore, arranged that each timber inspector should undertake, within the division for which he was responsible, the duties of sub-agent at points convenient alike to the public and the inspector on set dates.

A considerable amount of sub-agency work was dealt with by the inspectors and also by the forest superintendent and forest clerk at Rocky Mountain House. It should be noted, however, that this additional work, which is outside the normal duties of the various forest officers, interferes to a very great extent with movements inside their territory for the reason that it is seldom the regular work can be arranged to suit the set dates for sub-agency work without loss of time over that actually required for the latter duties. In addition to this, it is pointed out that supervision of the ranger staff is not as close as is desirable.

Conditions in the lumber industry remained on almost the same level as the previous year, though an improvement in the market was noticeable, which was due principally to the exhaustion of stocks. Railway tie manufacturing operations increased with the necessity of making replacements. Briefly, there has been little or no increase in lumbering operations, a slight betterment of market prices and an increase in tie-making operations. The advance has not been outstanding, although, in comparison with immediately preceding year, it is encouraging.

The forest fire season was about a normal one. Certain large sections of the Province produced rather hazardous conditions and a few very destructive fires resulted, in which instances control was difficult and expensive. Year after year it may be noted that there is a wide variation in weather conditions if Alberta is reviewed as a whole. It follows that some section of the Province will usually experience that combination of weather conditions which will produce a hazard, and that only in exceptional years such as 1932 will the Province be comparatively free of destructive fires.

A few unemployment relief camps were operated in the forest reserve in the southern part of the Province and supervision of the work undertaken required a degree of attention from the officers directly concerned.

The administration and protection of provincial forest reserves is a matter which gives some concern. The management of this territory involves the maintenance of many completed improvement projects constructed for protective and administrative purposes. Under existing conditions of staff employment it is extremely difficult and often impossible to have certain types of work attended to at the proper time.

There has been no change in the organization as outlined in the report of 1932. Forest protective and administrative staffs remain at the same strength and deal with the identical territory previously described. In some instances

administration work, and in many instances protection work, suffers by reason of reduced staff and the period of employment.

Forest Protection

Forest protection since its inception in this Province has primarily been concerned with fire protection. A close watch has been kept for abnormal destruction by insects and fungi, but up to the present losses from these causes have been comparatively small. While losses due to fires have provided by far the greatest destruction, it has been evident that in certain sections of the Province the more mature stands of spruce have been subject to a great deal of destruction by being windthrown. It would appear that this form of destruction results from a combination of conditions and is the cause of some concern, particularly in connection with stands of mature timber in the Buck Lake district. It should be pointed out that some of the operators have attacked this problem by making special efforts to salvage windthrown timber. It is commonly remarked that strong winds are now much more prevalent than a number of years ago.

The winter of 1932-33 was characterized by a very heavy fall of snow, and due to the absence of chinook winds this snow was only removed by the spring thaw which was later than usual. In the southern mountain region the snow disappeared earlier than in the northern mountains and the first forest fire in the south occurred on May 13th. From the Clearwater valley north there was no early spring fire danger. Subnormal precipitation during June and a continuance of this condition through July and into August resulted in a prolonged fire danger period over the entire mountain and foothill region. This embraced the Cypress Hills forest reserve, the Rocky Mountains forest reserve, districts 1 and 2 of the Northern Alberta forest district under Clearwater forest supervision and the Edmonton, Edson and Grande Prairie divisions of the Northern Alberta forest district.

The danger abated greatly in the latter part of August, the relief being general. This danger period was one of high winds and temperatures, low humidity and a general absence of rainfall. The rainstorms that did occur during this period afforded only limited relief as they were purely local in coverage. It will be understood, therefore, that certain areas were in a particularly hazardous condition. A counteracting factor during the early part of this period was the abundant growth of underbrush, annual plants, etc., which growth in the early summer had a retarding effect on ignition and spread of fire.

An early fall danger period which was generally effective over the Province occurred in the latter part of September and the fore part of October. The fire season was brought to a close by the general snow storm of late October although in one region, namely, the Brazeau division of the Brazeau-Athabaska forest, chinook winds cleared most of the snow away and a danger period of a month's duration was experienced between November 5th and December 5th.

The danger period during which fires were the most difficult to suppress was the one which occurred during July and August, and it was during this time that the most destructive fires were acted upon. In the mountain region this period was slightly more than two and a half months in duration which was a most abnormal condition.

Fire Prevention

The effort to deal more thoroughly with the major causes or sources of fires was continued, and with a degree of success. In the spring there is usually a period during which burning may be accomplished with little or no danger to

public and private property. As a general rule this period is not a lengthy one and under normal conditions it gradually merges into the spring danger period. Every effort is made to have settlers do all of their burning in the safe period and it is highly desirable that the rangers be on duty sufficiently early to take an active part in the spring burning campaign so that they may encourage safe burning under permit and advise the new and often inexperienced settler.

In certain districts honorary fire guardians have been appointed in order that burning permits may be secured with a minimum of trouble.

In the southern part of the Province an annual restriction on the use of outdoor fires is effective. This has in view the protection of vast areas of range and forest territory along the east slope of the mountains. The district affected is that enclosed by the following boundaries: on the north by the Bow river, on the south by the international boundary, on the east by the western limit of the right of way of the Calgary and Edmonton railway from its intersection with the Bow river in township 24, range 1, west of the 5th meridian, to its intersection with the east boundary of township 9, range 26, west of the 4th meridian, thence south along the said boundary of range 26 to its intersection with the international boundary and on the west by the boundary of Alberta and British Columbia. In this area fires for camping and other use out of doors are prohibited between the first day of August and the first day of December in each year. This restriction would be more effective if the opening date were advanced at least two weeks.

As reported previously camp sites are gradually being improved in the southern part of the Rocky Mountains forest reserve, this being done with a view to restricting the greater portion of camping to safe camp sites and localizing as far as possible the hazard arising from campers.

During the past year officials and employees of the various railways continued to co-operate in matters of fire prevention and suppression in a highly satisfactory manner. In addition the officers of the Board of Railway Commissioners for Canada again rendered valuable assistance through their work in connection with the use and maintenance of fire prevention equipment installed on locomotives and rolling stock used in the Province.

BURNING PERMITS ISSUED IN ALBERTA 1933

Northern Alberta Forest District:		
Edmonton	85	
Edson	192	
Athabaska	64	
Bonnyville	2	
McMurray	20	
Slave Lake	336	
Grande Prairie	401	
Peace River	63	
		1163
Forest Reserves:		
Cypress Hills	.....	
Crowsnest-Bow River	.....	
Clearwater	266	
Brazeau-Athabaska	11	
		277
Honorary Fire Guardians	323	
		323
Municipalities	521	
		521
TOTAL		2,284

It will be evident that the requirements of the regulations for the prevention of prairie and forest fires with respect to burning permits are not being enforced in many localities. In the Northern Alberta forest district the only enforcement is that which can be secured through the efforts of the ranger staff assisted by the Royal Canadian Mounted Police and the honorary fire guardians. Enforcement within established municipal districts is a matter for municipal officers.

PROSECUTIONS AND CONVICTIONS—PRAIRIE FIRES ACT, 1933

	Prosecutions	Convictions
Instituted by the R.C.M.P.	14	13
Instituted by the Alberta Forest Service	13	11
TOTALS	27	24

Fire Detection.

There is no change to report in connection with established fire detection services and no addition or extension has been made to those services. Where the look out system is in operation it continues to provide a highly satisfactory and accurate means of fire detection. The area covered by this form of detection is comparatively small and further extension must be made before even the important and accessible stands of mature timber are properly covered.

Fire Suppression.

Other conditions remaining unchanged, the cost of fire suppression gives a fairly accurate indication of the nature of fire season experienced as related to uncontrollable factors. The season under review was a difficult one in that in the territory where prevailing conditions make fire suppression difficult and expensive, the danger period was greatly prolonged. The territory referred to is the mountain and foothill area together with adjacent areas which are influenced to a degree by weather conditions which prevailed in these higher altitudes.

The season under review may be considered about average from the standpoint of suppression costs. Under prevailing circumstances, these costs will more often be over than under this season's total figure and the variation will be greater on the over-run side. It will be realized that with staff and equipment, in fixed number and quantity respectively, it would be possible to deal with conditions only up to a given proportion, beyond which in the case of fire suppression, efficiency breaks down as the fire situation gains in intensity.

During the year the Forest Service dealt with 288 fires which burned over 93,765 acres of land, of which 5,136 acres were private lands and 30, 955 acres non-forested. The cost of suppression action was $35,381.67, of which $4,366.58 represents ranger labour. The total loss in timber including cordwood and young growth was estimated to be $193,972.36. Only one fire occurred in the Cypress Hills forest reserve which was designated Class A and which caused no damage.

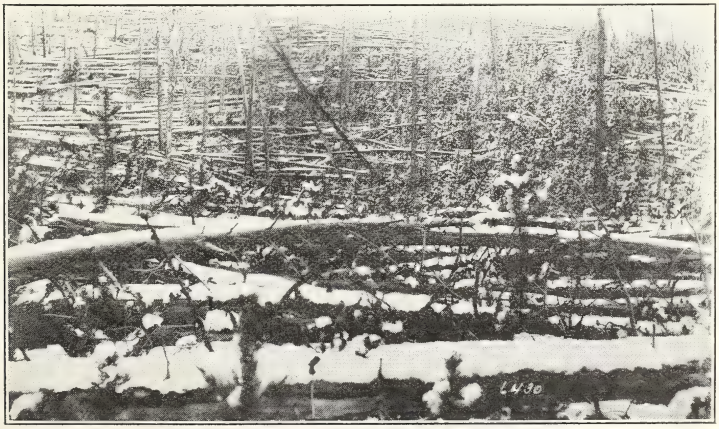
A comparison with the fire season of 1932 points to the difference between suppression action in mountain and foothill country and goes a long way towards confirming the presumption that fires in the higher and more rugged country are more difficult to control than those which occur in the lower and flatter country.

In 1932 the Forest Service dealt with 379 fires which burned over 136,117 acres, of which 68,253 acres were non-forested. The cost of suppression action was $15,653.46, exclusive of ranger labour. In 1932 there were almost 100 more fires than in 1933 though in the former year the cost of suppression was approximately one-half of the latter. In 1932 there were within the forest reserves 32 fires, involving suppression costs of $3,491.04. These fires were made up of 18 class A, 11 class B, 1 class C, and 2 class D. In 1933 there were 39 fires made up of 22 class A, 11 class B, 2 class C and 4 class D, all of which involved a suppression expenditure of $16,661.68 plus $1,748.24 for ranger labour. Of the above amount, and not including ranger labour, $12,536.31 was spent in the period July 15th to July 28th, inclusive, on 8 fires made up of 2 class A, 1 class B, 2 class C and 3 class D. These 8 fires, 3 of which were over 500 acres in extent, burned over a total of 14,766 acres, causing an estimated loss of $24,880.00. These features are brought out to show how

serious the situation can become in the east slope territory, the difficulty and costliness in dealing with these fires and the necessity for an effective organization in this area. They also account for a large portion of suppression costs during the past season and indicate the most dangerous part of that season in the mountain region.

August 5th to August 30th, inclusive, provided another dangerous period in the northern mountain and foothill territory. In the Brazeau-Athabaska forest the July danger period led on into that of August without real relief. In this portion of the Rocky Mountains forest reserve and the adjacent divisions of the Northern Alberta forest district—Grande Prairie, Athabaska and Edson—there were 35 fires in this period made up of 9 class A, 9 class B, 9 class C and 8 class D, which involved a suppression cost of $10,422.39, exclusive of ranger labour. These fires burned over 27,733 acres, causing an estimated loss of $123,212.83. These two periods account for over two-thirds of suppression costs and approximately three-quarters of the estimated loss.

Trail through burnt timber in the Brazeau Forest near Pembina River



Lodgepole pine windfall and reproduction after a fire

Causes.

It will be noted in the statement covering fires by causes that the camp fire was the greatest source of danger followed by settlers, smokers and incendiary fires in that order. The proportion of large to small fires is interesting in connection with the above mentioned causes. Of further interest is the percentage of the total number of fires chargeable to each cause and a comparison of the figures with those of 1932.

COMPARISON OF FIRE CAUSES BY PERCENTAGE

Cause.	1932	1933
Campers	52.8	38.9
Smokers	5.3	13.5
Settlers	17.1	17.4
Railways	4.5	2.8
Lightning	2.6	5.2
Industrial operations	1.1	1.7
Incendiary	8.2	11.8
Public Works	.5	1.4
Unclassified	1.6	....
Unknown	6.3	7.3

RAILWAY FIRE LOSSES—CALENDAR YEAR, 1933

Within the Province of Alberta on those forested areas under the supervision of the Alberta Forest Service. This summary includes only those fires which started within 300 feet of the centre line of the right of way of the railway.

	Northern Alberta Railways	Canadian National Railways	Canadian Pacific Railways	Totals
Causes and Number of Fires:				
Locomotives	....	1	1	2
Railway employees	2	....	....	2
Campers and travellers	6	6	....	12
Settlers	2	....	2	4
Unclassified	....	2	1	3
Unknown	2	....	....	2
TOTALS	12	9	4	25
Number of Acres Burned:				
Slashing or old burn	....	....	140	140
Young growth	18¼	....	45	63¼
Not forested	270	40½	16½	327
TOTALS	288¼	40½	201½	530¼
Loss:				
Timber	.....	.....	$400.00	$400.00
Young growth	$75.75	.....	112.50	188.25
Forest products	.....	$120.00	.....	120.00
Other property	.....	150.00	.....	150.00
TOTALS	$75.75	$270.00	$512.50	$858.25

ANNUAL STATEMENT OF FIRES BY CAUSES, MONTHLY DISTRIBUTION, ETC., WITHIN FOREST RESERVES, ALBERTA—CALENDAR YEAR 1933

Cause	Number						Damage	Area	Monthly Distribution												Prosecutions	Convictions	Fires Inside Provincial Forests		Fires Outside Provincial Forests	
	A	B	C	D	Tot.	P.C.			Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.			No.	Area	No.	Area
								Acres																Acres		Acres
Camp-fires	7	2	....	3	12	30.8	$91,649.95	27,186.37	....	....	....	....	1	....	6	4	....	1	....	....	5	4	12	27,186.38	....	.....
Smokers	6	3	....	....	9	23.1	23.50	9	....	....	....	....	1	4	2	2	....	....	....	....	....	....	9	9	....	.....
Settlers	....	....	....	....	....	....	.....	.....	....	....	....	....	....	....	....	....	....	....	....	....	1	1	....	.....	....	.....
Railways	....	2	....	....	2	5.1	1.50	1.5	....	....	....	....	1	....	....	....	....	1	....	....	....	....	2	1.5	....	.....
Lightning	8	1	2	....	11	28.2	864.83	374.25	....	....	....	....	....	....	2	9	....	....	....	....	....	....	11	374.25	....	.....
Industrial Operations	1	1	....	....	2	5.1	2.50	1	....	....	....	....	1	....	....	....	....	....	1	....	....	....	2	1	....	.....
Incendiary	....	2	....	....	2	5.1	6.15	3.75	....	....	....	....	1	....	....	1	....	....	....	....	....	....	2	3.75	....	.....
Public Works	....	....	....	....	....	....	.....	.....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.....	....	.....
Unclassified	....	....	....	....	....	....	.....	.....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.....	....	.....
Unknown	....	....	....	1	1	2.6	3,250.00	1,700	....	....	....	....	....	....	1	....	....	....	....	....	....	....	1	1,700	....	.....
Totals	22	11	2	4	39	100	$95,796.93	29,275.87	....	....	....	....	5	4	11	16	....	2	1	....	6	5	39	29,275.88	....	.....
Per cent.	56.4	28.2	5.1	10.3	100			.....	....	....	....	....	12.8	10.3	28.2	41.0.	....	5.1	2.6	....						

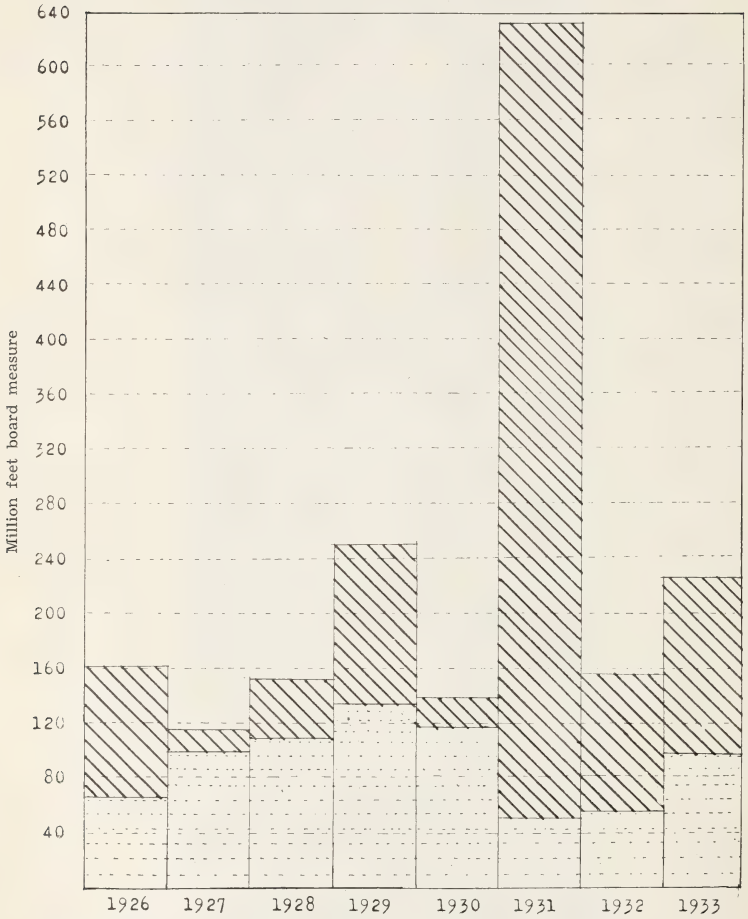
ANNUAL STATEMENT OF FIRES BY CAUSES, MONTHLY DISTRIBUTION, ETC., OUTS IDE FOREST RESERVES, ALBERTA—CALENDEAR YEAR 1933

Cause	Number						Damage	Area	Monthly Distribution												Prose-cutions	Convic-tions	Fires Inside Provincial Forests		Fires Outside Provincial Forests	
	A	B	C	D	Tot.	P.C.			Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.			No.	Area	No.	Area
								Acres																Acres		Acres
Camp-fires	51	16	27	6	100	40.2	$15,075.12	10,557.38	....	....	....	1	13	18	8	31	19	9	1	....	2	2	....	.....	100	10,557.37
Smokers	9	7	14	....	30	12.0	3,841.38	1,900.75	....	....	....	....	11	6	1	4	3	5	....	....	....	....	....	.....	30	1,900.75
Settlers	8	10	26	6	50	20.1	7,753.37	19,256	....	....	....	1	6	9	4	7	10	13	....	....	5	4	....	.....	50	19,256
Railways	1	3	2	....	6	2.4	78.75	75.50	....	....	....	....	1	....	1	3	1	....	....	....	....	....	....	.....	6	75.50
Lightning	....	....	2	2	4	1.6	2,211.25	3,355	....	....	....	....	....	....	2	2	....	....	....	....	....	....	....	.....	4	3,355
Industrial Operations	1	....	2	....	3	1.2	644.06	280	....	....	....	....	1	1	....	....	1	....	....	....	....	....	....	.....	3	280
Incendiary	2	6	16	8	32	12.9	33,946.25	21,430.25	....	....	....	....	11	12	....	2	....	7	....	....	....	....	....	.....	32	21,430.25
Public Works	2	1	1	....	4	1.6	3.75	22	....	....	....	....	....	1	....	2	....	1	....	....	....	....	....	.....	4	22
Unclassified	....	....	....	....	....	....	.....	.....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.....	....	.....
Unknown	4	5	6	5	20	8.0	36,454.50	7,612.25	....	....	....	....	3	5	1	8	....	3	....	....	....	....	....	.....	20	7,612.25
Totals	78	48	96	27	249	100	$100,008.43	64,489.13	....	....	....	2	46	52	17	59	34	38	1	....	7	6	....	.....	249	64,489.12
Per cent.	31.3	19.3	38.6	10.8	100			.....	....	....	....	.8	18.5	20.9	6.8	23.7	13.6	15.3	.4	....						

ANNAUL STATEMENT OF FIRES BY CAUSES, MONTHLY DISTRIBUTION, ETC., WITHIN AND OUTSIDE FOREST RESERVES, ALBERTA—CALENDAR YEAR 1933

Cause	Number						Damage	Area	Monthly Distribution													Prose-cutions	Convic-tions	Fires Inside Provincial Forests		Fires Outside Provincial Forests	
	A	B	C	D	Tot.	P.C.			Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.			No.	Area	No.	Area
								Acres																	Acres		Acres
Camp-fires	58	18	27	9	112	38.9	$106,725.07	37,743.75	....	....	....	1	14	18	14	35	19	10	1	....	7	6	12	27,186.38	100	10,557.37
Smokers	15	10	14	....	39	13.5	3,864.88	1,909.75	....	....	....	....	12	10	3	6	3	5	....	....	....	....	9	9	30	1,900.75
Settlers	8	10	26	6	50	17.4	7,753.37	19,256	....	....	....	1	6	9	4	7	10	13	....	....	6	5	....	.....	50	19,256
Railways	1	5	2	....	8	2.8	78.75	77	....	....	....	....	2	....	1	3	1	1	....	....	....	....	2	1.50	6	75.50
Lightning	8	1	4	2	15	5.2	3,076.08	3,729.25	....	....	....	....	....	....	4	11	....	....	....	....	....	....	11	374.25	4	3,355
Industrial Operations	2	1	2	....	5	1.7	646.56	281	....	....	....	....	2	1	....	....	1	....	1	....	....	....	2	1	3	280
Incendiary	2	8	16	8	34	11.8	33,952.40	21,434	....	....	....	....	12	12	....	3	....	7	....	....	....	....	2	3.75	32	21,430.25
Public Works	2	1	1	....	4	1.4	3.75	22	....	....	....	....	....	1	....	2	....	1	....	....	....	....	....	.....	4	22
Unclassified	....	....	....	....	....	....	.....	.....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.....	....	.....
Unknown	4	5	6	6	21	7.3	39,704.50	9,312.25	....	....	....	....	3	5	2	8	....	3	....	....	....	....	1	1,700	20	7,612.25
Totals	100	59	98	31	288	100	$195,805.36	93,765	....	....	....	2	51	56	28	75	34	40	2	....	13	11	39	29,275.88	249	64,489.12
Per cent.	34.7	20.5	34.0	10.8	100			.....	....	....	....	.7	17.7	19.4	9.7	26.1	11.8	13.9	.7	....	....	....	13.5	31.2	86.5	68.8

GRAPH OF TIMBER DEPLETION, PROVINCE OF ALBERTA
1926 TO 1933, INCLUSIVE



During this period the total depletion was 1,834,653,880 F.B.M., of which 39.82% was utilized and 60.18% destroyed by fire.

Legend

Timber destroyed by fire

Timber utilized

ANNUAL SUMMARY OF FOREST FIRE LOSSES, ALBERTA—CALENDAR YEAR 1933

INSIDE FOREST RESERVES

FIRE CAUSES	NUMBER OF FIRES					LANDS AFFECTED							LOSS										SUPPRESSION COSTS			
	CLASS					OWNERSHIP		AREA	CONDITION				SALVABLE			UNSALVABLE										
	A	B	C	D	Total	Public, Acres	Private, Acres	Total	Merchantable Timber, Acres	Cut-over Timber, Acres	Young Growth, Acres	Not Forested, Acres	Saw-timber, M.ft., B.M.	Other, Cords	Depreciation	Saw-timber, M.ft., B.M.	Other, Cords	Loss	Loss of timber	Loss of Young Growth	Loss of Other Property	Total Loss	Ranger Service	Other Expenditure	Total	Burning Permits Issued
Campers	7	2	....	3	12	27,186.38	.....	27,186.38	20,194.25	1,862	3,918.87	1,211.25	10	1,200	$460.00	19,133	107,029	$ 79,738.20	$ 80,198.20	$ 11,151.75	$ 300.00	$ 91,649.95	$1,143.04	$13,165.76	$14,308.80	.....
Smokers	6	3	....	....	9	8.75	.25	9	6.25	.25	1.50	1	1	1	1.25	.....	25	18.75	20.00	3.50	.....	23.50	54.61	104.00	158.61	.....
Railways	....	2	....	....	2	1	.50	1.50	.....	.....	.....	1.50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10.00	.....	10.00	.....
Lightning	8	1	2	....	11	374.25	.....	374.25	322	.....	52.25	.....	15.75	.....	8.63	5.25	1,360	786.83	795.46	69.37	.....	864.83	480.54	3,001.17	3,481.71	.....
Industrial Operations	1	1	....	....	2	1	.....	1	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	2.50	.....	2.50	5.68	.....	5.68	.....
Incendiary	....	2	....	....	2	3.75	.....	3.75	.....	.....	2	1.75	.....	.....	.....	.....	.....	.....	.....	6.15	.....	6.15	35.91	24.96	60.87	.....
Unknown	....	....	....	1	1	1 700	.....	1,700	20	.....	1,280	400	.....	.....	.....	50	.....	50.00	50.00	3,200.00	.....	3,250.00	18.46	365.79	384.25	.....
TOTALS	22	11	2	4	39	29,275.13	.75	29,275.88	20,542.50	1,862.25	5,255.62	1,615.50	26.75	1,201	$469.88	19,188.25	108,414	$ 80,593.78	$ 81,063.66	$ 14,433.27	$ 300.00	$95,796.93	$1,748.24	$16,661.68	$18,409.92	.....

OUTSIDE FOREST RESERVES

Campers	51	16	27	6	100	9,723.25	834.12	10,557.37	3,186	422	4,984.50	1,964.87	295	3 622	$1,951.00	1,531.50	12,373	$ 4,448.87	$ 6,399.87	$ 7,765.25	$ 910.00	$15,075.12	$ 701.48	$ 3,240.52	$ 3,942.00	.....
Smokers	9	7	14	...	30	1,537.75	363	1 900.75	268.75	385	728	519	.....	2,125	1,593.75	41	2,316	823.38	2,417.13	1,399.25	25.00	3,841.38	226.32	871.10	1,097.42	.....
Settlers	8	10	26	6	50	16,342.50	2,913.50	19,256	6,488.50	270	611	11,886.50	510	855	651.25	306	15,406	5,886.50	6,537.75	1,150.62	65.00	7,753.37	290.62	1,845.87	2,136.49	.....
Railways	1	3	2	....	6	10	65.50	75.50	.....	.....	.25	75.25	.....	.....	.....	.....	.....	.....	.....	.75	78.00	78.75	1.75	.....	1.75	.....
Lightning	...	...	2	2	4	3,355	.....	3,355	228	.....	2,310	817	.....	.....	.....	556	600	730.00	730.00	1,481.25	.....	2,211.25	578.23	1,113.55	1,691.78	.....
Industrial Operations	1	...	2	....	3	248	32	280	.....	140	80	60	.....	.....	.....	.....	700	400.00	400.00	164.06	80.00	644.06	38.78	50.60	89.38	.....
Incendiary	2	6	16	8	32	21,028.75	401.50	21,430.25	4,950.50	1,129.25	3,377	11,973.50	3,575.50	7,099.50	7,480.50	8,690	22,350	19,515.00	26,995.50	6,575.75	375.00	33,946.25	565.25	3,634.39	4,199.64	.....
Public Works	2	1	1	...	4	22	.....	22	.....	.....	2	20	.....	.....	.....	.....	.....	.....	.....	3.75	.....	3.75	12.63	.....	12.63	.....
Unknown	4	5	6	5	20	7,086.25	526	7,612.25	2,673	180	2,735	2,024.25	3	252	7.00	30,570	5,800	30,610.00	30,617.00	5,837.50	.....	36,454.50	203.28	3,597.38	3,800.66	.....
TOTALS	78	48	96	27	249	59,353.50	5,135.62	64,489.12	17,794.75	2,526.25	14,827.75	29,340.37	4,383.50	13,953.50	$11,683.50	41,694.50	59,545	$ 62,413.75	$ 74,097.25	$ 24,378.18	$ 1,533.00	$100,008.43	$2,618.34	$14,353.41	$16,971.75	.....

WITHIN AND OUTSIDE FOREST RESERVES

Campers	58	18	27	9	112	36,909.63	834.12	37,743.75	23,380.25	2,284	8,903.38	3,176.12	305	4,822	$ 2,411.00	20,664.50	119,402	$ 84,187.07	$ 86,598.07	$ 18,917.00	$ 1,210.00	$106,725.07	$1,844.52	$16,406.28	$18,250.80	.....
Smokers	15	10	14	....	39	1,546.50	363.25	1,909.75	275	385.25	729.50	520	1	2,126	1,595.00	41	2,341	842.13	2,437.13	1,402.75	25.00	3,864.88	280.93	975.10	1,256.03	.....
Settlers	8	10	26	6	50	16,342.50	2,913.50	19,256	6,488.50	270	611	11,886.50	510	855	651.25	306	15,406	5,886.50	6,537.75	1,150.62	65.00	7,753.37	290.62	1,845.87	2,136.49	.....
Railways	1	5	2	....	8	11	66	77	.....	.....	.25	76.75	.....	.....	.....	.....	.....	.....	.....	.75	78.00	78.75	11.75	.....	11.75	.....
Lightning	8	1	4	2	15	3,729.25	.....	3,729.25	550	.....	2,362.25	817	15.75	.....	8.63	561.25	1,960	1,516.83	1,525.46	1,550.62	.....	3,076.08	1,058.77	4,114.72	5,173.49	.....
Industrial Operations	2	1	2	....	5	249	32	281	.....	140	81	60	.....	.....	.....	.....	700	400.00	400.00	166.56	80.00	646.56	44.46	50.60	95.06	.....
Incendiary	2	8	16	8	34	21,032.50	401.50	21,434	4,950.50	1,129.25	3,379	11,975.25	3,575.50	7,099.50	7,480.50	8,690	22,350	19,515.00	26,995.50	6,581.90	375.00	33,952.40	601.16	3,659.35	4,260.51	.....
Public Works	2	1	1	...	4	22	.....	22	.....	.....	2	20	.....	.....	.....	.....	.....	.....	.....	3.75	.....	3.75	12.63	.....	12.63	.....
Unknown	4	5	6	6	21	8,786.25	526	9,312.25	2,693	180	4,015	2,424.25	3	252	7.00	30,620	5,800	30,660.00	30,667.00	9,037.50	.....	39,704.50	221.74	3,963.17	4,184.91	.....
TOTALS	100	59	98	31	288	88,628.63	5,136.37	93,765	38,337.25	4,388.50	20,083.38	30,955.87	4,410.25	15,154.50	$12,153.38	60,882.75	167,959	$143,007.53	$155,160.91	$ 38,811.45	$ 1,833.00	$195,805.36	$4,366.58	$31,015.09	$35,381.67	.....

SUMMARY BY DIVISIONS

DIVISIONS																										
[1]N.A.F.D.																										
Clearwater (Outside, [2]F.D. 1, 3, 2)	78	47	89	26	240	58,033.50	4,989.18	63,022.63	17,453.75	1,921.25	14,627.75	29,019.88	4,383.50	13,453	$11,558.50	41,552	57,817	$ 61,306.75	$ 72,865.25	$ 23,840.68	$ 1,533.00	$ 98,238.93	$2,310.70	$13,628.37	$15,939.07	1,163
Clearwater (Inside)	....	1	4	1	6	1,160	146.5	1,306.5	341	580	165	220.5	.....	500	125.00	143	1,678	1,082.00	1 207.00	41.250	.....	1,619.50	56.53	332.47	389.00	266
Stream-Athabasca	4	2	....	1	7	11,218	.25	11,218.25	9,011	1,200.25	7	1,000	10	1,200	460.00	.....	47,624	17,868.00	18,328.00	8.75	300.00	18,636.75	473.63	7,101.52	7,575.15	.....
Crowsnest-Bow River	6	2	1	2	11	16,275.37	.....	16,275.37	11,179.25	687	3,796.87	612.25	.....	.....	.....	18,703	59,479	61,483.20	61,483.20	12,658.00	.....	74,141.20	729.26	3,903.26	4,632.52	11
Cypress Hills	11	7	4	1	23	1,941.75	.50	1 942.25	352.25	.....	1,486.75	103.25	16.75	1	9.88	485	1,361	1,267.58	1,277.46	1,891.52	.....	3,168.98	783.53	6,049.47	6,833.05	.....
	1	....	....	....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	12.88	.....	12.88	.....
TOTALS	100	59	98	31	288	88,628.62	5,136.38	93,765	38,337.25	4,388.50	20,083.37	30,955.88	4,410.25	15,154	$12,153.38	60,883	167,959	$143,007.53	$155,160.91	$ 38,811.45	$ 1,833.00	$195,805.36	$4,366.58	$31,015.09	$35,381.67	1,440

[1]Northern Alberta Forest District.
[2]Ranger District.

Personnel.

Coverage by staff concerned with forest protection remained as reported previously, but it was not sufficient in the Northern Alberta forest district and in the supervision of field staff both in the forest reserves and the Northern Alberta forest district.

The increasing hazard from settlement must be met by more intensive field organization with provision for a satisfactory degree of field supervision and direction. Within the forest reserves and within the area formerly administered as the Lesser Slave forest reserve, it is evident that the curtailment of the period of employment of a number of the field staff has resulted in a difficult situation in respect to the maintenance of improvements which are important in the protective and administrative organization of these areas.

Fire-fighting Equipment.

Under existing circumstances the replacement of obsolete and worn equipment is difficult. Equipment on charge is being properly maintained and stored. Equipment for replacements and additions is needed and at certain centres satisfactory storage facilities need to be arranged.

Co-operation.

The assistance received through co-operative arrangements with various government departments, both Dominion and Provincial, and other agencies and individuals concerned with or interested in forest protection has been very satisfactory and encouraging. The assistance provided voluntarily and without pre-arrangement is one of the most encouraging features to be mentioned. It has been evident that a large number of citizens in the Province realize the importance of forest cover and many of them are willing to go to great lengths to assist in forest protection. When the residents of the Province fully understand the importance of native forest cover, the difficulties of protection will be greatly reduced.

Forest Administration

Provincial Forest Reserves.

Timber operations continued at approximately the same level as in the preceding year and were principally those concerned with coal-mining operations and the manufacturing of railway ties. Of considerable importance to individuals is the privilege of meeting their timber and fuel wood requirements through obtaining authority to take timber under permit. This privilege is utilized extensively throughout the southern portion of the Rocky Mountains forest reserve and in the Cypress Hills forest reserve. Where possible the timber cutting operations under permit authority are confined to the taking of sound fire-killed or dead timber.

During the fiscal year 1933-34 there were 15 active and 9 inactive sales on forest reserves. Six new sales were awarded and nine were closed out due to completion of operations or failure to operate. The total amount of timber on these new sales was as follows: saw timber 16,829,000 F.B.M., mine timber 600,000 lineal feet, mine props 2,614,000 lineal feet.

Following is a summary of material cut from timber sales during the year together with value of same:

TIMBER CUT ON TIMBER SALES, ALBERTA FOREST RESERVES
APRIL 1st, 1933, TO MARCH 31st, 1934

Forest	Lumber (F.B.M.)	Tops (pcs.)	Fence Posts (pcs.)	Railway Ties	Mine Ties	Mine Props (lin. ft.)	Building Logs (lin. ft.)	Lagging (lin. ft.)	Value
Crowsnest	691,530	524	2,350	65	5,970	285,334	22,544	.....	$2,570.01
Bow River	70,000	.....	.....	.....	.....	.....	.....	.....	175.00
Clearwater	58,018	.....	.....	.....	.....	518,673	.....	136,968	2,394.06
Brazeau	1,469 500	.....	.....	12,000	6,080	690,436	.....	.....	6,487.37
TOTALS	2,289,048	524	2,350	12,065	12,050	1,494,443	22,544	136,968	$11,626.44

TIMBER CUT UNDER PERMIT, ALBERTA FOREST RESERVES, FISCAL YEAR 1933-34

Forest	No. of Permits	Fuel Wood (cords)	Saw Timber F.B.M.	Fence Posts	Fence Rails	Poles (pcs.)	Mine Timber (lin. ft.)	Fence Droppers, Thinnings	Building Logs (lin. ft.)	Poles (lin. ft)	Christmas Trees	Round Timber (lin. ft.)	Lagging (lin. ft.)	Mine Ties	Mine Props	Railway Ties
Cooking Lake	7	9	.....	800	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cypress Hills	380	484	193,000	32,390	19,907	8,870	3,340	350	100	130	2	.....	.....	.....	.....	.....
Crowsnest-Bow River	567	4,668	707,122	6,852	18,936	977	974,998	5,244	38,455	810	.....	8,765	96,100	365	.....	60
Clearwater	19	79	.....	.....	.....	.....	.....	.....	344	.....	.....	.....	.....	.....	.....	.....
Brazeau-Athabaska	66	133	.....	.....	.....	34	28,100	.....	4,546	.....	.....	.....	.....	.....	20,000	.....
TOTALS	1,039	5,373	900,122	40,042	38,843	9,881	1,006,438	5,594	43,445	940	2	8,765	96,100	365	20,000	60

The utilization of grazing resources within the forest reserves continued on a satisfactory basis. In the Crowsnest division of the Rocky Mountains forest reserve and in the Cypress Hills forest reserve grazing utilization has reached a point close to the maximum carrying capacity of the range. From the Sheep River valley north grazing utilization is not intensive excepting in certain accessible districts. Utilization will not reach the maximum possible until market conditions give rise to larger and more herds. Along the foothill and mountain country there is a gradual extension to the north of grazing operations which is an encouraging development.

The year under review was exceptionally dry with the result that over the southern ranges forage was not as plentiful as in previous years. Stock was removed from forest range at the end of the grazing season in good condition for finishing or wintering. In a season such as the past one the importance of this forest range and its regulated use were evident and gave a further indication of the extreme value of forest protection when the results of such protection are considered in terms of water supply, forage growth and ground cover.

GRAZING WITHIN ALBERTA FORESTS—GRAZING YEAR 1933

Forest	No. of Permits	No. of Horses	No. of Cattle	No. of Sheep
Cypress Hills	69	331	2,712	.....
Crowsnest-Bow River	251	1,930	17,426	6,705
Clearwater	82	252	20	.....
Brazeau-Athabaska	91	672	72	.....
TOTALS	493	3,185	20,230	6,705

COMPARISON OF GRAZING

Grazing years:	1931	1932	1933
Number of permits	456	606	493
Number of cattle	15,041	20,086	20,230
Number of horses	3,417	3,377	3,185
Number of sheep	4,379	7,465	6,705

Where possible the field staff within the forest reserves assisted the Game Branch of the Department of Agriculture in game enforcement matters and a similar form of co-operation was extended to the Fisheries Division of the Department of Lands and Mines. It is possible to provide this co-operation as forest protection work requires that the field staff makes contact with all forest visitors and travellers. In addition the field staff within the Rocky Mountains forest reserve continued to provide active assistance in the distribution of fish fry within the reserve. This assistance took the form of providing pack horses for transportation together with a certain amount of transportation by truck and speeder, and packing and assisting with the actual distribution of fry as has been provided for many years. In all of this, improvements within the forest such as roads, trails and telephone lines are necessary to accomplish the work.

The various improvements totalling a large mileage of roads, trails, telephone lines and a number of buildings, corrals, fences, etc., require continuous attention in order that each project may be maintained in a usable condition. This maintenance work is undertaken by the regular field staff and requires all the time that can be spared from protection and administration work. As a matter of fact with the restricted period of employment effective for that part of the staff once employed permanently, the maintenance of improvements is in many instances not receiving the attention it should and, in the case of roads, trails and telephone lines, later in the season than is safe.

Very little new construction work has been attempted and only that which has been urgent and could be dealt with by the regular staff without an expensive outlay for material. The most important work and most expensive, had it been done under ordinary circumstances, is that dealt with through the use of workers on relief.

In the Crowsnest-Bow River forest the relief camp working on the Red Deer road was removed from that project on completion of a passable road and work was started on the Gap road which leads to the Gap ranger station. This project had in view the relocation of a section of road east of Racehorse creek that was subject to flooding and washout, and the replacement of the Racehorse creek bridge.

In the Clearwater forest work was continued on the road leading up the Saskatchewan valley west of Nordegg. This road is to connect with the Jasper-Lake Louise road at its western terminus.

The progress on both forests may be accepted as satisfactory when consideration is given to weather conditions obtaining during the winter, the fluctuation of labour supply during the summer and the loss of time in moving camp from the Red Deer district to the Gap on the Livingstone river and the removal of the Saskatchewan river camps to road work east of Nordegg during the summer.

WORK DONE BY UNEMPLOYMENT RELIEF CAMPS

Crowsnest Forest:
- Clearing (to width of 66 ft.)—1.5 miles.
- Grading—2 miles (including 1 mile of heavy side-hill cuts).
- Gravelling—1 mile.
- Culverts—4.
- Breakwaters—Two were built of rocks and logs; one being 310 ft. long by 10 ft. high and the other 150 ft. long by 8 ft. high.
- Bridges—1 bridge 4-span, 160 ft. long.
- Rock moved—Approximately 4,925 cu. yds. of rock moved.
- Dirt moved—Approximately 16,400 cu. yds. of dirt moved.

Clearwater Forest:
- Clearing (to width of 66 ft.)—4.7 miles.
- Grading—11 miles.
- Guard-rail—2,460 ft.
- Side-hill fills and cuts—2.4 miles.
- Culverts—74.
- Bridges—8 bridges built; total length, approximately 330 ft.; a total of 14 spans.

IMPROVEMENT STATEMENT

NEW CONSTRUCTION PROJECTS:

Forest	Garages, Sheds, etc.	Barns	Fences	Root Cellars	Cabins	Ranger Station Houses	Trails (Miles)	Water Systems	Forest Signs	Cultivated Land (acres)
Cypress Hills	2	....	1	....	....	....	....	....	....	....
Crowsnest	1	3	1	1	....	....	....	....	....	....
Bow River	1	2	....	....	1	1	....	....	....	....
Clearwater	....	....	....	....	2	1	13	....	....	....
Brazeau	....	....	2	....	....	....	10	1	1	....
Athabaska	....	....	3	....	1	....	....	1	....	5½
TOTALS	4	5	7	1	4	2	23	2	1	5½

MAINTENANCE PROJECTS:

Forest	Ranger Station Houses	Telephone Lines (miles)	Fire Guards (miles)	Roads (miles)	Water Systems	No. of Fences	Grounds	Cabins	Garages, Sheds, etc.	Trails (miles)	Bridges	Barns	Corrals	Gateways	Hay Meadows	Pastures	Store-houses	Ferries
Cypress Hills	1	12	27	½	1	1	1	....	....	....	....	....	....	....	....	....	....	....
Crowsnest	3	138	....	52½	....	11	4	2	2	150¾	1	....	....	....	....	....	....	....
Bow River	2	223½	....	59½	3	18	5	4	2	588	....	3	5	1	2	1	....	....
Clearwater	1	175	....	24	1	5	....	2	....	850	....	2	1	....	....	....	2	1
Brazeau	5	117	....	....	1	8	6	8	5	227	....	3	....	....	....	....	....	....
Athabaska	1	64	....	2	1	4	2	5	2	425	2	....	....	....	....	....	....	....
TOTALS	13	729½	27	138½	7	47	18	21	11	2240¾	3	8	6	1	2	1	2	1

IMPROVEMENTS—STATEMENT OF MAN-DAYS WORKED

NEW CONSTRUCTION:

Forest	Garages, Sheds, etc.	Fences	Barns	Root Cellars	Cabins	Ranger Station Houses	Trails	Water Supply	Signs	Clearing Land
Cypress Hills	26	6	....	....	....	....	....	....	....	....
Crowsnest	25	4	8	7	....	....	....	....	....	....
Bow River	12	....	9	....	38	28	....	....	....	....
Clearwater	....	....	....	....	41	2	4	....	....	....
Brazeau	....	14	....	....	....	....	5	11½	2½	....
Athabaska	....	22	....	....	4	....	....	6	....	61½
TOTALS	63	46	17	7	83	30	9	17½	2½	61½

MAINTENANCE:

Forest	Ranger Station Houses	Telephone Lines	Fire Guards	Roads	Water Systems	Fences	Grounds	Sheds, Garages, etc.	Cabins	Trails	Bridges	Barns	Corrals	Gateways	Hay Meadows	Pasture	Store-houses	Ferries
Cypress Hills	42½	14	6	3½	1½	4	2	....	....	....	....	....	....	....	....	....	....	....
Crowsnest	9	248	....	78	....	49	42	2	2	106	14	....	....	....	....	....	....	....
Bow River	12	315	....	132	6	117	10	5	11	212	....	5	24	2	10	1	....	....
Clearwater	3	56	....	11	2	39	....	....	7	406	....	1	15	....	....	....	3	14½
Brazeau	32½	112	....	....	2	102	50½	4	35½	138	....	15	....	....	....	....	....	....
Athabaska	4	58½	....	6	9	79	36½	1	6	148½	6	....	....	....	....	....	....	....
TOTALS	103	803½	6	230½	20½	390	141	12	61½	1010½	20	21	39	2	10	1	3	14½

Staff strength on the forest reserves was not increased during the year nor was the period of employment changed.

The existing arrangement has led to certain difficulties of administration. Maintenance of improvements and the safety of equipment is giving some concern. This is due to lack of coverage for many districts during the winter which leads to infringement of the regulations and with many ranger districts and buildings vacated, it follows that maintenance of improvements must await the re-employment of the seasonal staff, and that fire-fighting and other equipment is at the mercy of those inclined to steal such articles.

There is also a serious lack of field supervision of staff and of work in the southern part of the Rocky Mountains forest reserve and this should be corrected just as soon as possible.

The administration of The Prairie Firest Act and the regulations for the prevention of prairie and forest fires has a close connection with forest protection, being the basic legislation providing for protection work over all areas outside of the forest reserves. It is, therefore, unnecessary to again refer to the matter here in so far as it affects forest protection other than to point out that this legislation contains certain obsolete and unsatisfactory provisions which should be replaced.

STATEMENT OF REVENUE—FOREST RESERVES
(April 1st, 1933, to March 31st, 1934.)

Timber permits	$ 8,834.06
Timber seizures	43.53
Timber sales	13,556.44
Timber sale applications and guarantee deposits	2,325.00
Grazing permits	13,033.83
Hay permits	207.91
Fishing permits	918.00
Surface rentals	2,308.85
Miscellaneous use permits	947.23
Sundry revenue	1,268.96
TOTAL	$43,443.81

Northern Alberta Forest District.

The administration of the forest resources of all forested provincial and school lands within the Province and not included within the forest reserves was continued on lines similar to those of the preceding year. Whilst the tendency of recent years for the larger operators to curtail or discontinue work was again very marked, there was a decided increase in the number of smaller operations and also in the total amount of lumber and other products manufactured in connection with these. During the year no less than 71 new permits timber berths were sold compared with 41 during the preceding year.

This tendency towards reduced production on the larger operations and increased production on the smaller ones is well exemplified by the figures showing lumber manufactured on the various classes of operations. Whilst lumber manufactured on licensed berths during the year aggregated 29,047,673 f.b.m., a decrease of approximately 24%, lumber from timber berths reached a total of 15,912,096 f.b.m., an increase of more than 100% over the corresponding figures for the preceding year. The production of lumber and of railway ties also shows a considerable increase over the previous year on operations conducted under settler's and other timber permits.

The total production of all classes of material from timber berths in the Province showed a slight decrease in comparison with last year excepting in the cases of mine timber in which there was a substantial increase and of railway ties in which production increased by nearly 360%. The latter increase was largely due to the fact that in recent years the railway companies had cut down their purchases of ties until a point was reached where considerably heavier purchasing was necessitated in order to make proper maintenance of rights of way possible.

A comparison of timber products manufactured during the year from all sources on provincial and school lands within the Province, including operations on berths and under authority of settlers' and other permits, show a slight increase in the quantity of lumber manufactured over the previous year, in spite of the curtailment of the larger operations. An increase of well over 100% is shown in the number of railway ties manufactured.

Although a number of the larger mills did not operate during the year, the total number of saw-mills operating showed a substantial increase, most of the new mills being of a comparatively small capacity. Revenue from timber operations is still at a comparatively low level, but on the whole, collections during the year compare fairly well with those for the preceding year.

Although the manufacture of railway ties showed a considerable increase, all other timber operations remained at the depressed level of production of recent years. This condition is, of course, consequent to the general economic depression which has reduced all construction activities and with them the demand for lumber and other timber products. An increased lumber export from British Columbia during the year has had the unfavourable effect in Alberta of throwing increased supplies of the poorer grades of British Columbia lumber, which are unsuitable for export, on the already depressed lumber markets of the prairies.

Certain legislation was effected during the year for the purpose of reducing the burden of timber operators who had continued to operate after the economic depression had seriously reduced the market prices of lumber products, and for the purpose of utilizing timber in small isolated stands. In January, 1934, orders in council were assented to which authorized a rebate of 50c per thousand f.b.m. on timber cut, manufactured or sold from timber berths in the Province and from timber sales in the provincial forest reserves between October 1st, 1931, and September 30th, 1933, except in the case of fire-killed timber berths on which the rebate was to be at the rate of 25c per thousand. This rebate was applied in the form of a credit to each account concerned and was based in each case upon the cut, manufacture, or sale of lumber during the period concerned, whichever proved to be the greater, so as to give the operator in each case the maximum rebate as authorized. As already stated this legislation was designed to lighten the burden of those operators who had continued to operate in spite of the handicap of a badly depressed market, thus providing much needed employment for a considerable number of men.

The timber regulations were amended under date of December 12th, 1933, one of the most important amendments authorizing the issue of special permits to cut timber from isolated tracts not over 160 acres in area and containing not more than 125,000 f.b.m. Another amendment at that time increased the settler's free allowance of fuel wood, in cases where the same was to be cut from dead or fire-killed timber, from 15 to 25 cords per annum.

Certain amendments to the schedule of rates of dues payable on materials cut under timber permit from provincial and school lands are being planned, which will have the effect of reducing such dues on certain classes of material and also of bringing such dues in line with those charged on provincial forest reserves, these changes no doubt to be effected before the publication of this report.

Amongst other amendments to The Provincial Lands Act assented to on April 11th, 1933, was one dispensing with the newspaper advertising of the sale of timber permit berths. Notices of sale are now displayed in local post offices and mailed to the applicant for the berth, and any other interested parties, the effect being to save considerable expense and time.

STATEMENT OF TIMBER OPERATIONS ON PROVINCIAL AND SCHOOL LANDS
April 1st, 1933, to March 31st, 1934.

	Licensed Timber Berths	Permit Timber Berths	School Lands Timber Berths	Provincial Lands Timber Permits	School Lands Timber Permits
Number of active operations	34	124	11	2,894	344
Lumber (ft. B.M.)	29,047,673	15,912,096	290,551	10,805,025	98,050
Railway Ties	105,903	644,239	20,493	119,327	1,637
Piling (lin. ft.)	.....	18,850	.....	14,761	.....
Mine Timber (lin. ft.)	134,988	28,631	.....	150,570	.....
Lath	2,476,570	583,356	.....	.....	.....
Telegraph and Telephone Poles	.....	.....	.....	802	600
Building Logs (lin. ft.)	.....	2,904	.....	348,188	5,972
Fence Rails	.....	.....	.....	1,588,089	1,610
Roof Poles	.....	.....	.....	316,453	275
Fence Posts	.....	100	.....	362,591	580
Shingles	.....	436,000	.....	77,000	.....
Shingle Bolts (cords)	.....	13	.....	69	6
Cordwood (cords)	.....	439	.....	8,512	400

Number of Inspection Reports submitted by Timber Inspectors 1,968
Number of Timber Seizures made: 177 on Provincial Lands
15 on School Lands
192

In connection with the above statement it should be pointed out that this does not give a complete record of timber operations during the fiscal year, as many of the permits issued during the year have not, at the date of compiling this statement, been returned showing material obtained. Similarly many of the timber berth quarterly returns were not received in time for the material shown thereon to be included in the summary. Figures shown in this statement for material manufactured on timber berths will not agree with the totals of the figures shown in the Edmonton and Calgary Crown Timber Agents' reports for the reason that the figures in those reports were compiled at a somewhat earlier date than the above statement, which for that reason includes quarterly returns which had not been received when they were compiled.

The increase in number of timber operations on the smaller scale, which has already been referred to, has very considerably increased the inspection and supervision work required of the timber inspectors. In addition to this, arrangements were made during the summer of 1933 whereby the timber inspectors acted as sub-agents of provincial lands on certain specified days each month at one or more points in their districts. The following table summarizes the work covered by the various inspectors from October 1st, 1933, to March 31st, 1934, in the course of their duties as sub-agents of provincial lands:

SUMMARY OF SUB-AGENCY DUTIES PERFORMED BY TIMBER INSPECTORS

From October 1, 1933 to March 31, 1934

Inspection Districts	Points at which Sub-Agency Duties Performed	Entries		Reservation for Minors	Improvements	Statutory Declarations	Abandonments	Applications for					Miscellaneous	Total Transactions	Revenue Collected
		Homestead	S. Grant					Cancellations	Grazing Leases and Permits	Hay Permits	Timber Permits	Patent			
Edmonton	Breton	5	....	....	2	3	3	8	....	....	4	1	....	26	$ 82.25
Edson	Edson	26	....	1	....	4	2	15	1	1	9	5	5	69	540.00
Athabasca	Barrhead	49	....	1	1	2	6	23	....	....	33	4	6	125	618.00
	Athabasca														
Bonnyville	Bonnyville	63	....	....	5	3	8	71	7	....	24	6	8	195	1,171.97
Slave Lake	Slave Lake	7	....	....	....	....	....	7	1	....	....	....	....	15	95.40
Peace River	McLennan	35	....	....	2	7	6	20	....	2	7	110	9	198	458.00
	Fairview														
Grande Prairie	Spirit River	25	....	4	3	22	8	25	....	1	27	27	9	151	425.90
	Debolt														
TOTALS		210	....	6	13	41	33	169	9	4	104	153	37	779	$3,391.52

The transaction of sub-agency business by the timber inspectors has necessitated the devotion of considerable time in this connection and has, in some cases, seriously interfered with the timber inspection work, particularly since it being necessary for the inspector to act as sub-agent at definite points on certain stated days, he must on occasion leave inspection work in some other locality unfinished in order to reach the point at which he was to act as sub-agent on the date specified.

In spite of having devoted considerable time during the last six months of the year to sub-agency duties, the timber inspection work actually accomplished during the year shows a considerable increase over the preceding year, 1,968 inspection reports having been submitted as compared with 1,476 in 1932-33.

In some districts a stage has been reached whereby, with all the other duties now being performed by the field men, the burden is becoming too heavy for them, and further assistance is needed to enable the present efficiency to be maintained.

The following statement shows the miles that were travelled and means of travel used by timber inspectors in the course of their duties during the year:

On foot	1,771 miles
On horseback	1,152 "
Driving (team)	4,042 "
By railway speeder	3,919 "
By automobile	72,129 "
By canoe	200 "
By raft	14 "
By motorboat	737 "
By railway	14,914 "
TOTAL	98,878 miles

From the middle of December until the end of the fiscal year road conditions made it impossible for inspectors to use automobiles in the Peace River, Grande Prairie and Bonnyville districts.

The greatly increased number of timber inspection reports submitted is only one indication of the increased efficiency of the timber inspection and supervision work performed. In so far as the greatly increased demands upon their time admit, as close a check as possible has been made of brush disposal, close utilization, and trespass and illegal operations. The chief difficulty, as already stated, can be overcome only by increasing the inspection staff, as the timber inspection work in their present large districts together with that of fire protection and also certain additional sub-agency duties now in effect have in some cases already exceeded the capacity of any one man.

For this reason little progress has so far been possible in the timber reconnaissance work which it is of great importance to undertake in order that stock may be taken of the timber resources of Alberta with a view to conserving the immature and disposing of the mature timber to the best advantage of the operator and of the Province.

Nursery and Tree Distribution

Nursery.

The really active spring period of nursery work and tree distribution overlaps the end of the fiscal year. In order to provide a complete report on the work accomplished, it becomes necessary to report fully on the work carried on in the spring period without cutting off at the end of the fiscal year.

A continuation of the nursery work recently initiated at Oliver has been under way and this has led to nursery expansion. While Oliver is an ideal place for nursery development, it was foreseen that such development would be somewhat limited for the reason that the labour supply available at the Oliver Institution is not wholly satisfactory and is limited in ability to cope with large

scale nursery operation. Accordingly arrangements were made to begin nursery operations at other suitable government institutions and a definite start was made at the Ponoka Mental Hospital, the Fort Saskatchewan jail and the Lethbridge jail where a large number of seedlings were set out in transplant beds.

The following seedlings from Oliver were moved and placed in transplant beds at the locations indicated:

Ponoka Mental Hospital—35,000 lodgeploe pine.
Fort Saskatchewan Jail—75,000 lodgepole pine.
Lethbridge Jail—18,000 lodgepole pine, 31,000 Scotch pine.

The tree stock moved to the Lethbridge jail has not been placed in the area set aside for nursery purposes for the reason that suitable wind-breaks must be developed. The stock was transplanted into the garden grounds. An area of 9½ acres, triangular in shape and with provision for irrigation, has been set aside for nursery purposes at Lethbridge. Roadways have been laid out and tree stock for the purpose of developing suitable wind-breaks around and through the area has been planted.

At the Oliver nursery the following seedling stock was transplanted:

Lodgepole pine	168,000
Jackpine	28,000
Scotch pine	22,000

Of the above amount 28,000 jackpine and 7,000 lodgepole pine were moved to the transplant bed in the fall of 1933. Due to high winds and lack of snow there has been considerable damage to this lot by cutting from drifting soil. There was also the moving of a considerable number of elm, larch, poplar and burr oak.

Following the removal of seedlings to transplant bed, the seed beds were prepared for planting and three additional seed beds 70 feet long prepared. The beds are uniformly four feet wide. The following species, in varying quantities, are now in them: white spruce, lodgepole pine, red pine, Scotch pine, Scotch (Ladoga) pine, white pine, Douglas fir, Siberian larch, silver maple, white elm. Experimental work with other species is also being done on a small scale.

With the assistance of local single unemployed men, two-year old Russian poplars were planted twenty-five feet apart on both sides of the highway between the Edmonton city limits and Oliver.

The officials of three schools which are situated along main highways were offered assistance in the planting of trees and shrubs for the purpose of building up a model lay-out from which other schools could pattern. Only two of the schools, East Edmonton and Clover Bar, were willing to co-operate. At one school Russian poplars were planted, and at the other caragana, Russian poplar and spruce were put in. It is hoped to do further planting at these schools next year.

On the site of the forestry cabin at the exhibition grounds in Edmonton there is a small model nursery and a model farm shelter-belt. The stock from the seed-beds was removed, and after the ground was thoroughly dug up and worked, seeds of mountain ash, red oak, and white elm were planted in the beds. The shelter-belt was thinned and cultivated.

COST OF NURSERIES APRIL 1st TO DEC. 31st, 1933
(Supervision costs not included)

Material	$139.29
Wages	190.00
Seed	45.99
Freight and cartage	45.61
TOTAL	$420.89

Mature spruce on the trail from Mountain Park to the Brazeau River

Distribution.

A total of 257 applications was received up to the closing date for 1934 from all parts of the Province. Of this number, it was necessary to reject 29 because the trees were required for purposes not covered in the policy of distribution.

The orders accepted were made up as follows:

Individuals (farmers)	183
Schools	18
Institutions (non-commercial)	13
Towns, municipalities, parks, cemeteries and community grounds	14
TOTAL	228

The 228 orders for trees were shipped to 114 different points in all parts of the Province from Magrath, in the south, to Grande Prairie in the north.

The total number of trees distributed was 34,339 made up of the following species:

White spruce	21,128
Siberian larch	1,593
Green ash	5,120
Lodgepole pine	1,865
White elm	1,295
Russian poplar	3,030
Burr oak	223
Jack pine	85
TOTAL	34,339

This number is a large increase over last year's distribution which amounted to only 8,095 trees. In addition to that number there were shipped last year about 700,000 caragana plants. This policy has been discontinued and replaced by the distribution of caragana seed by the Provincial Department of Agriculture.

COST OF TREE DISTRIBUTION, 1934
(Supervision costs not included)

Material	$106.61
Freight and cartage	25.33
TOTAL	$131.94

The stock available for distribution in the spring of 1935 is limited to two species of which the following quantities are available:

White spruce	110,000
Green ash	8,400

The stock of all other species is either of such small quantity as to make general distribution impossible or it is as yet too small for planting out.

It is suggested that a certain amount of publicity and education is needed to impress upon farmers in the Province the necessity of planting trees and establishing caragana hedges. With a large store of caragana seed at the disposal of the Department of Agriculture it is regrettable that the applications for seed have been rather few in number. It is thought that if the policy of shipping caragana plants had been continued, it would have grown to such an extent that millions of plants would be shipped out every year. Yet in spite of the fact that caragana can be grown from seed in the garden along with the vegetables, and takes just the same treatment, the demand for such seed is very limited. No doubt a little educational work along this line would be of assistance.

Publicity

The most important aim of the publicity used by the Forest Service is to educate the public in regard to the importance of forest cover and to be careful with fire, since human carelessness is the principal cause of forest fires.

The interest of school children is aroused by the distribution of certain publicity material principally to those schools in or near forested areas. Field officers also give occasional lectures to the school classes.

The adult public is reached in several ways. In periods of great fire danger, articles are published in the press warning the people of the need for care with matches, camp fires and tobacco. Forestry cabins located on the exhibition grounds at Edmonton and at Calgary were used for the purpose of housing exhibits of forest products and illustrating the need for and importance of forest cover but were not fully utilized. The Calgary cabin was not opened in 1933 due to unfavourable fire conditions on the Crowsnest-Bow River forest and consequent shortage of staff.

For persons who are travelling in the woods, warning posters are put up by forest officers in conspicuous places. Personal contact, although necessarily

limited except within the forest reserves, is also relied upon by the protection staff to obtain the co-operation of those using the forests.

Public Relations

The contact between officers of the Alberta Forest Service and the public has been maintained on a satisfactory basis. Whether it be a matter of forest administration or forest protection, the effort is to help the individual in any way possible. In dealing with infringement of the regulations it becomes necessary to take a definite stand but the effort on the part of the forest officers is first to instruct in order that infringements may be prevented as far as possible.

Rangers fording Sheep Creek in the Clearwater Forest

MILEAGE TRAVELLED BY PERSONNEL OF THE ALBERTA FOREST SERVICE

Fiscal Year 1933-34

Method of Travel	Cypress Hills Forest	Crowsnest-Bow River Forest	Clearwater Forest	Brazeau-Athabaska Forest	N.A.F.D.	Totals
Foot	.....	4,289	1,632	3,089	16,839	25,849
Saddle	1,909	42,252	12,551	17,172	43,896	117,780
Driving	.....	2,742	398	.....	11,133	14,273
Speeder	.....	.....	1,841	6,760	17,432	26,033
Auto	105	27,962	10,955	2,114	80,915	122,051
Canoe	.....	.....	.....	.....	7,797	7,797
Rowboat	.....	.....	.....	.....	22	22
Raft	.....	.....	.....	.....	507	507
Motorboat	.....	.....	.....	.....	5,368	5,368
Aeroplane	.....	.....	.....	.....	25	25
Railway	.....	.....	1,158	3,422	13,270	17,850
TOTALS	2,014	77,245	28,535	32,557	197,204	337,555

Fisheries

REPORT OF THE DIRECTOR OF FISHERIES, R. T. RODD

Market conditions were decidedly better during the fiscal year under review, reflecting in gains both to the fisherman for his product and to the companies operating.

Most lakes prospered on a capacity basis and with a strong market evident through most of the year, products from different parts of the Province were disposed of profitably. Arrangements were made wherever possible to accommodate fishermen and selling agencies with changes in the regulations, when desired, so as to meet market conditions. This concession was thoroughly appreciated by the trade and resulted in a desire on the part of the fisherman to co-operate with the Department in the enforcement of regulations.

Usual drought conditions prevailed in the mountain streams of southern Alberta and occasioned some concern for the welfare of species of the game variety, but wherever possible officers employed were able to rescue fish which were stranded by lack of water. Trout fishing continued to improve and reports of larger size fish and bigger creels were continually received.

Coarse fish angling showed a slight decrease due partly to lower waters in some of the lakes, causing the fish to change their feeding grounds, and partly to an over-abundance of natural food, making artificial bait much less attractive. Due to a severe winter, with the consequent heavy ice and inability of anglers to get to their favourite spots, very little angling through the ice was undertaken, naturally contributing materially to this decrease.

Commercial Fishing

Commercial fishing for the period covered by this report amounted to a total of 3,566,356 pounds, an increase of 911,142 pounds over the preceding year. The value to fishermen showed an increase of $36,684.70 and the value as marketed an increase of $69,946.73. Prices reached a high average, rising noticeably during the month of March, 1934, and reports of depleted stocks held in cold storage assisted in the sale of freshly caught fish. Some new equipment was purchased and fishermen generally operated their yardage capacity. Operations at Wabamun and Pigeon lakes were exceptionally good. Both being in excellent condition, the limit of 185,000 pounds of whitefish for the former was exceeded by 29,583 pounds, the value to fishermen exceeded the value of the catch for 1932-33 by $5,685.08. Fishing at Pigeon Lake totalled 189,835 pounds of whitefish, which is a decrease of 25,072 pounds from the previous season's catch when additional fishing was permitted, but an increase is shown in the value to fishermen of $666.02 with the same number of men operating.

At Lesser Slave Lake the pickerel fishing was exceptional and good prices were obtained during the month of March. Whitefish fishing was fair with continued signs of improvement. Indications show that the intensive restocking policies undertaken in previous years will assist greatly in the recovery of this lake. A large increase is reported from fishing at Lesser Slave with a larger number of fishermen operating. The total amount of fish of all species taken amounted to 1,397,311, an increase of 504,503 pounds, and an increase in value to fishermen of $18,611.20.

Lac La Biche with nearly three times as many fishermen operating shows an increase of 304,646 pounds, and an increase in value to fishermen of $6,076.78.

The number of fishermen operating numbered 83 as against 31 for the year previous. Difficulties arising in the disposal of the large quantities of tullibee caught during the winter were overcome largely by the number of peddlers purchasing fish at this lake. This class of fish is generally disposed of in smaller towns and to farmers at low prices.

The greater part of the catch from the Whitefish lakes in the Lesser Slave Lake district is caught and sold in a frozen condition owing to the distance to steel. Average conditions prevailed excepting only that the value to fishermen was slightly less than in the previous fiscal year. There was an increase of some 5,000 pounds in the catch with an increase of 6 fishermen.

The winter catch at Cold Lake showed an increase in the catch of trout of 14,730 pounds and a slight decrease in the catch of whitefish. During the fiscal year 1932-1933 the number of licenses issued was 61, and during the year under review only 45 men operated with a better average catch per fisherman reported. Value to fishermen increased by $1,263.44.

Primrose Lake, which is intersected by the provincial boundary line, is but lightly fished on the Alberta side, the Saskatchewan portion offering the better fishing grounds. No fishing was reported on the Alberta side during the previous year, but, during the season 1933-34, 4 men operated and 7,350 pounds of whitefish were caught. Fishing was but fair.

Fishing at Lake Winnifred north of Lac La Biche furnished 12 men with reasonably good returns in view of the fact that this lake was considered to be badly depleted. The showing from this lake of 30,000 pounds of whitefish caught in a very short time amply proves the quick recoveries of Alberta lakes from overfishing, when these lakes are lightly fished, or not fished at all for a few years. This particular lake has only been lightly fished since its heavy production in 1927-28.

Fishing was also carried on for the first time in three years at Lac St. Anne and 49,651 pounds, practically the limit of 50,000 pounds, were shipped by the 10 commercial fishermen operating. The average price received ranged around five cents per pound to the fishermen. As Lac Ste. Anne has been closed for two years to enable the whitefish to recover, this catch, which averaged over 5,000 pounds per person, was considered to be most satisfactory.

Other lakes commercially popular, though on a smaller basis, varied but little in either the number of fishermen operating or in production. The most important of these are Baptiste, Sturgeon, Pinehurst, Gregoire, Elinor, Isle, Christena, Beaver, McGregor, Newell, Fawcett, Buck and Moose lakes fished both summer and winter, and Lylich, Bourque, Marie, Touchwood and Helena lakes during the winter only. Trout and Wabasca lakes were unfished during the year under review.

Equipment.

Somewhat better equipped fishermen engaged in fishing and the operating companies generally speaking were more liberal with credit, due in a large measure to the better markets and keener competition among the buyers. Some old boats were reconditioned and a happier general situation prevailed throughout. Most fishermen realized a clear profit for the first time in three years.

Markets.

Prices for the latter part of the summer season and at the end of March during the Jewish festival were good and higher prices obtained through the other seasons. The Department continued its campaign of urging a more careful handling of fish and of shipping the standard which can be most easily absorbed, care to be taken in the use of clean boxes of properly dressed fish,

carefully packed and iced, which would result in a greater demand for the Alberta product. With a larger number of fishermen operating, abuses creep in, but generally speaking the average fisherman is gradually being educated to the fact that with proper attention to standard of product and method of distribution markets will react accordingly. Competition from eastern points, always of course the most important and vital factor, was slightly keener than in the previous year. This was mostly due to the absorption of all frozen and cold storage stocks and with a larger demand for fresh water fish, the Alberta product was more easily disposed of. Care was again taken in the production of fish only when the markets were sound and the demand keen. Local markets had at times some difficulty in obtaining their requirements because of the demand from the United States. The products of Alberta fisheries were as a whole more highly priced than for some two years previously.

Transportation.

Due to the comparatively mild winter and deep snows a number of the more distant lakes were inaccessible. To reach some of them the winter trails across swamps and muskegs and as these had been prevented from freezing by the heavy snowfall early in the season the trails became impassable. Many pedlars, usually an important factor in the local supply, were unable to use their trucks, but railway facilities were good. Air service was used very little during the year, the only fish so transported to the railway being those caught in Saskatchewan waters which were brought to the steel at Conklin. Main roads, generally speaking, were good and little discomfort was occasioned either from Pigeon or Wabamun in bringing fish in fresh condition to shipping points.

Domestic Fishing.

Whilst there was an increase of 50 licenses shown there was a decrease in the poundage caught of 46,750 pounds. This class of fishing becomes more popular yearly. Many residents, especially farmers, will travel long distances to take advantage of this way of obtaining their supply of fish which is generally secured in a few days. Others living close to lakes set their nets only as fresh fish was desired. Accurate returns of catches to this Department are difficult to obtain, and can only be estimated, owing to the licensee usually having no method of weighing the fish. The estimated amount of the catch taken during the year under domestic licenses was 411,250 pounds. Chin Lakes in southern Alberta provide many farmers in the irrigated district with excellent whitefish. The Department's policy of permitting only domestic licenses in the smaller, easily fished lakes continued to be popular. Fishing on a domestic basis is provided for in the following lakes: Chin, Newell, Pigeon, Whitefish lakes north of Smoky Lake, Wabamun, Lac Ste. Anne, Lac La Nonne, Buck and Buffalo, all situated in well settled farming districts. The decrease in poundage is possibly due to the close check kept on those who in the past were inclined to take more fish than required and dispose of the surplus unlawfully.

Indian Fishing.

The records show another increase over the previous season both in poundage and the number of Indians fishing, the increase in poundage being 87,635 and the increase in permits issued, 50. The estimated amount of fish taken by Indians during this year was 947,635 pounds of all kinds.

TOTAL AMOUNT OF FISH TAKEN FOR COMMERCIAL PURPOSES—IN ORDER OF IMPORTANCE

		Weight, lbs.		Value to Fishermen		Value as Marketed	
WHITEFISH	May 16/33 to Sept. 30/33	642,753		$ 22,036.53		$ 37,697.18	
	Dec. 1/33 to Dec. 31/33	252,249		9,893.05		18,064.64	
	Jan. 1/34 to March 31/34	592,054		41,625.30		51,342.00	
			1,487,056		$ 73,554.88		$107,103.82
LAKE TROUT	May 16/33 to Sept. 30/33	.....		.....		.....	
	Dec. 1/33 to Dec. 31/33	25,410		$ 646.60		$ 1,544.40	
	Jan. 1/34 to March 31/34	13,461		613.17		688.47	
			38,871		1,259.77		2,232.87
PIKE	May 16/33 to Sept. 30/33	150,108		2,793.09		3,314.15	
	Dec. 1/33 to Dec. 31/33	177,455		2,928.97		4,879.55	
	Jan. 1/34 to March 31/34	360,594		8,652.62		11,588.54	
			688,157		14,374.68		19,782.24
PICKEREL	May 16/33 to Sept. 30/33	474,181		13,281.03		28,465.31	
	Dec. 1/33 to Dec. 31/33	148,278		4,259.29		8,660.43	
	Jan. 1/34 to March 31/34	290,595		18,570.87		27,402.75	
			913,054		36,111.19		64,528.49
TULLIBEE	May 16/33 to Sept. 30/33	34,911		752.15		759.52	
	Dec. 1/33 to Dec. 31/33	45,910		291.95		522.60	
	Jan. 1/34 to March 31/34	65,875		1,098.93		1,702.96	
			146,696		2,143.03		2,985.08
PERCH	May 16/33 to Sept. 30/33	11,980		314.11		728.80	
	Dec. 1/33 to Dec. 31/33	925		27.00		31.00	
	Jan. 1/34 to March 31/34	18,265		1,054.65		1,054.65	
			31,170		1,395.76		1,814.45
SUCKER, LING, GOLDEYE, MULLET	May 16/33 to Sept. 30/33	124,813		1,309.83		1,309.83	
	Dec. 1/33 to Dec. 31/33	45,270		433.30		433.30	
	Jan. 1/34 to March 31/34	91,269		541.91		565.16	
			261,352		2,285.04		2,308.29
	TOTALS		3,566,356		$131,124.35		$200,755.24

Licenses and Permits.

As will be seen from the following table, an increase of 27 in the number of licenses and permits issued, appeared for this year. Domestic, fishermen's and commercial licenses and Indian permits show an increase, but angling permits show a decrease, 140 for the Fisheries Division and 81 for the Forestry, as shown below:

Fiscal Year:	*1930-31	1931-32	1932-33	1933-34
Domestic licenses	566	555	458	508
Fishermen's and commercial licenses	1,033	755	598	746
Angling permits sold by Fisheries Division	7,731	6,533	4,963	4,823
Angling permits sold by Forestry Division	.....	566	478	397
Indian permits	1,130	736	860	910
TOTALS	10,460	9,145	7,357	7,384

*Six months to March 31.

Angling.

Trout fishing continued to improve throughout the year and provided as hitherto the major sport for anglers. In the Red Deer river and its tributaries evidence of the establishment of Loch Leven trout was as noticeable as in the previous year, but the rainbow and cutthroat were the species most popularly sought after. Indication is that fishing for these two varieties has never been better than during the year reviewed. With better economic conditions undoubtedly angling will increase greatly, and heavier stocking will be necessitated. This will be especially required in the Edson district when the Jasper Highway will be completed as an all weather route.

Streams in southern Alberta continue to be a source of worry through drought conditions and much work is performed in the saving of game fish stranded or in danger of being stranded. The destroying of predacious fish in game fish streams and rivers continues to be an important part of the duties of Fisheries officers. An appendix follows on this phase of the Division's work. Good fishing generally prevailed in the Bow, Highwood, Elbow, Old Man, Crowsnest, Willow and Castle rivers and the streams around Edson and grayling were particularly plentiful in the MacLeod River. Fair catches of Loch Leven trout were obtained in some stretches of water stocked with this variety around the Red Deer River and its tributaries. Good fishing was also noticeable in Cold Lake. No results have so far been experienced from the experiment of stocking Wabamun and Pigeon lakes with this variety, although occasional reports have been received that trout have been caught in these waters.

Coarse fish angling was generally good throughout the Province, especially in those lakes created as irrigation projects. Many anglers were seen obtaining good catches at Lac La Nonne, Lac Ste. Anne, Hastings, Mere and other lakes in the vicinity of Edmonton. During the winter a regrettable incident has to be reported in the loss of all fish in Lake Nakamun and Whitewood lake as a result of a severe winter and thick ice and snow. These two lakes, particularly the former, were important from the standpoint of angling. It is to be hoped that with restocking they will again resume their importance as popular resorts to anglers.

FISH CAUGHT BY ANGLERS

Trout	226,000 lbs.	5,362	increase
Rocky Mountain whitefish	79,000 "	56,000	decrease
Arctic grayling	50,000 "	17,000	decrease
Goldeye	7,730 "	3,440	increase
Pickerel	150,000 "	27,876	decrease
Perch	230,000 "	10,375	increase
Pike	746,000 "	112,240	decrease
TOTAL	1,488,730 lbs.		

or a decrease of 193,939 lbs. on the year's operations.

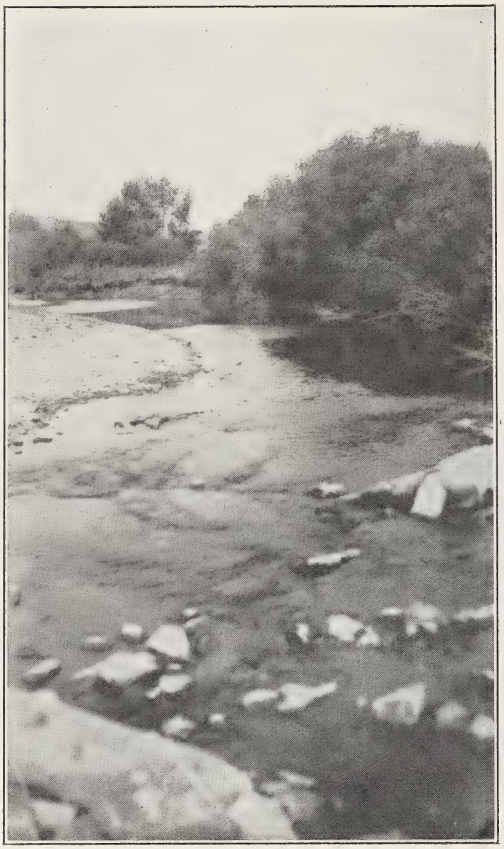
Loss of Fish—Rescuing Fish.

Due to the continued drought in the southern part of the Province during the last few seasons many of the smaller streams of the foothills became dangerously low, while others went dry altogether at certain points during the summer months. In some of the larger ones the waters receded, leaving pools or backwaters where fish became landlocked or cut off from the main stream, resulting in the danger of these pools becoming dry or fish being frozen in during the winter. These conditions no doubt caused some loss of game fish but not as great as was first anticipated.

A very close watch was kept on all streams by the inspectors and guardians and, where necessary and possible, the fish cut off or in danger of being lost were rescued and removed to more suitable waters. Were it not for the natural habits or instincts of trout, the loss would no doubt have been much greater and more work would have been necessary to save them.

Willow Creek, tributary of the Old Man River, showing result of drought condition. Fisheries Officer creating channel by moving boulders and rescuing small trout

Willow Creek showing results after boulders moved and channel created



Willow Creek, three miles down stream from previous pictures. Increased waterflow from other tributaries and water reappearing from gravel beds in main creek

Trout in Alberta foothill and mountain streams do not naturally frequent warm waters. If the streams do not become low or dry up too quickly these fish, when finding the waters becoming shallow and warm, will, if at all possible, head up stream towards the source where usually in mountain streams the flow is more uniform and the water colder or they will go down stream seeking greater and colder depths. For this reason the loss has been much smaller than would be expected and the necessity for rescuing fish not nearly so great. Fortunately there were several light rains and snowfalls late in the season which greatly improved conditions for the winter. During the summer season of 1933 the following fish were rescued:

District of Sundre (Guardian Thompson)	2,729	Rocky Mountain whitefish
District of Bragg Creek (Guardian Fullerton)	8	trout
District of Willow Creek (Guardian Comrie)	1,228	"
District of Connelly Creek (Inspector Holmes)	22	"
	3,987	Adult trout and whitefish

Removal of Predacious and Undesirable Fish From Trout Waters.

For a number of years this work has been carried on by the various officers as one of their regular duties but no record was kept during this time of the number of this class of fish removed or destroyed. From 1928 to 1932 inclusive the following fish were removed from trout waters:

Suckers, ling	67,150
Pike	94
Large Dolly Varden trout	214
TOTAL	67,458

It might be explained that the large Dolly Varden trout, when found in waters frequented by other species of trout, grayling, or Rocky Mountain whitefish, being of a cannibalistic nature, are very destructive and it is considered advisable to remove such fish where possible.

During 1933 the following fish were removed from trout waters:

Sundre district (Guardian Thompson)	11,806	sucker and ling
	642	pike
	47	Dolly Varden trout
Elbow River district (Guardian Fullerton)	100,253	sucker
Calgary district (Inspector Richardson)	188	pike
	4	Dolly Varden trout
Highwood River district (Guardian Smith)	684	sucker and ling
	10	Dolly Varden trout
Willow Creek district (Guardian Comrie)	713	sucker
	35	pike
Crowsnest area (Inspector Holmes)	164	sucker
TOTAL	114,546	

Observation of Regulations.

Prosecutions during the fiscal year under review numbered 62, a decrease of 27, and the number of confiscations amounted to 53, a decrease of 15. The following is a table of the different offences:

Angling in closed season	12
Angling without a permit	8
Fishing with gill nets without a license	7
Fishing in close season	6
Exceeding allowable amount of net	6
Having fish in possession during close season	5
Fishing in closed waters	5
Using illegal apparatus	3
Exceeding daily limit of catch	2
Buying fish from Indians	1
Obstructing free passage of fish with illegal dam	1
Using explosives to kill fish	1
Obstructing officer in course of duty	1
Selling freshly caught whitefish in closed season	1
Possession of freshly caught whitefish in close season	1
Operating unlawful mesh nets	1
Fishing without having nets tagged	1
TOTAL	62

For some years it has been evident that the greatest number of prosecutions continue to be fishing without the necessary license or permit. Much interest is taken and assistance given each year by the many fish and game associations which carefully watch conditions and assist in a very material way for the safeguarding of the many hundreds of streams. The assistance of the R.C.M.P. is most valuabale and greatly appreciated by this Division.

Irrigation.

Very few complaints were received during the season regarding the loss of fish through the forty-five irrigation schemes in various parts of the Province. With the exception of three operators, every co-operation possible was received by the Fisheries staff in an endeavor to prevent loss. In the three exceptions referred to no screens were installed in the headgates but necessary action in this respect has been taken to see that the regulations are carried out.

The loss of a few trout at the outlet of one of the reservoirs was reported but on investigation it was found that nothing could be done at this particular point. Suitable screens will be installed, however, at the headgates of the system which will prevent fish entering this reservoir.

The new diversion from the Highwood River into Squaw Coulee and Mosquito Creek has given no cause for complaint as the proper screens were installed at the time the headgates were completed.

Dams and Fishways.

No difficulties have been experienced during the year in connection with the large number of dams in existence on various streams or rivers throughout the Province.

It has been found through close observation that in some instances these dams have been a benefit to the fisheries. The Canadian Pacific Railway's dam in the Bow River at Bassano prevents large numbers of suckers and pike from ascending the stream. The numbers of these fish which are detrimential to trout fishing are gradually becoming less and consequently trout fishing is improving. The same applies to the Glenmore dam in the Elbow River constructed by the city of Calgary. It was claimed by some that this dam would be detrimental to trout fishing but the opposite has been the result. It has been found that this dam is preventing pike and sucker from ascending from the Bow River and efforts are now being made to remove the few pike still found in the waters above.

There has been some agitation for a fish ladder in the Calgary Power Company's dam in the Bow near the junction of the Ghost River. It was found that an efficient fishway could not be erected in this dam owing chiefly to the fluctuations in water levels in the lake above. A fishway that would be effective at the high water level would be useless when the water was low, and vice versa. On the other hand a channel has been washed out by the water passing through the spillway and has created a natural passage for fish which is much better than anything that could be erected. Large numbers of fish have been seen passing up stream through this channel, and into the lake above the dam when there is an overflow, which is all that can possibly be expected. Indications are that the fishing is improving in the lake above the dam.

Regulations may be necessary to restrict the fishing in this channel within a certain distance of the dam.

Pollution of Streams.

Little need be said with regard to this phase of the work for close co-operation with field men of the various divisions of the Department has prevented the possibility of any offences being committed. Complaints are still received from the Calgary district regarding pollution of the Bow River but very little action can be taken in the matter particularly as the city is now endeavouring to treat all sewage. The greatest cause for complaint at present is that oil and grease from the washing of cars passes into the sewers, a situation for which there appears to be no immediate remedy.

Fish Culture

With the continued co-operation of the federal Department of Fisheries and the staff of the game fish hatcheries within the parks, this branch of the work was again carried out in a very satisfactory manner in so far as it applies to the stocking of streams with game fish. Owing to the lack of funds it was, however, found necessary to temporarily discontinue the operation of the whitefish hatchery at Lesser Slave Lake.

The continued drought in the southern part of the Province necessitated very great care being taken in the distribution of fry and fingerlings. Many streams which appeared to be in excellent condition early in the season and which seemed suitable for fry or fingerlings became dangerously low, some drying up altogether. This caused the necessity in many instances of changing the schedule or diverting the allotments for these streams to other more suitable waters. Inspectors and guardians who assist the hatchery superintendents and who are continuously patrolling their territories are in a position to watch closely and advise superintendents as to the conditions of the various streams with the result that loss of fry has been avoided. This condition, however, necessitated a reduction in the number of plantings in some districts as compared with previous seasons which automatically increased them in other waters as a consequence.

The number of plantings during the year from Waterton hatchery was 53, as compared with 65 for the previous period. Banff hatchery totalled 89 as compared with 61 the previous year, an increase of 28. The number from Jasper hatchery in the waters outside the parks was 26 showing an increase of five. A decrease, however, is shown in the total number of fry planted from Jasper due to losses occurring in the hatchery through sudden stoppage in the water supply which was unavoidable.

Details of the distribution from the various hatcheries into waters outside the national parks are as follows:

WATERTON

RAINBOW TROUT

Name of Waters	Fry	Advanced Fry	Fingerlings, No. 1
Tributaries of Castle River:			
Beaver Mines Creek	.....	.....	10,000
Gladstone Creek	.....	.....	10,000
Lynx Creek	.....	.....	8,500
Gardner Creek	.....	.....	8,500
Tributaries of Old Man River:			
Pincher Creek	.....	.....	26,275
Tributaries of Crowsnest River:			
Crowsnest Lake	.....	20,000	.....
Allison Creek	.....	10,000	.....
Byron Creek	.....	10,000	.....
Gold Creek	.....	10,000	.....
Star Creek	.....	5,000	.....
Blairmore Creek	.....	10,000	.....
Todd Creek	.....	25,000	.....
Tributaries of Willow Creek:			
Lyndon Creek	.....	.....	15,000
Patterson Creek	.....	.....	5,000
Trout Creek	.....	.....	15,000
Burke Creek	.....	.....	10,000
Burton Creek	.....	.....	5,000
Johnson Creek	.....	.....	10,000
North Fork Willow Creek	.....	.....	15,000
South Fork Willow Creek	.....	.....	15,000
Westrup Creek	.....	.....	5,000
Chaffin Creek	.....	.....	10,000
Nelson Creek	.....	.....	5,000
Ryley Creek	.....	.....	5,000
Kuntz Creek	.....	.....	5,000
Tributaries of Waterton River:			
South Fork Yarrow Creek	.....	5,000	.....
Beaver dams (sec. 22 t. 3 r. 30 w4m)*	.....	5,000	.....
Beaver dams (sec. 27 t. 3 r. 30 w4m)*	.....	5,000	.....
South Fork Pine Creek	.....	15,000	.....
Smith Creek	.....	6,000	.....
Shaws Lake	.....	1,000	.....

CUTTHROAT TROUT

Tributary of Castle River:			
Mill Creek	.....	30,000	.....
Tributaries of Old Man River:			
Beaver dams (sec. 32 t. 10 r. 3 w5m)*	.....	40,000	.....
Beaver dams (sec. 8 t. 11 r. 3 w5m)*	.....	40,000	.....
Heath Creek	.....	15,000	.....
Bobs Creek	.....	25,000	.....
Racehorse Creek	.....	25,000	.....
Livingstone River	.....	25,000	.....
Sharples Creek	.....	15,000	.....
Playle Creek	.....	5,000	.....

Name of Waters	Fry	Advanced Fry	Fingerlings, No. 1
Adair Creek	.....	5,000	.....
Damon Creek	.....	5,000	.....
Callum Creek	.....	20,000	.....
Beaver Creek	.....	30,000	.....
Tributaries of St. Mary's River:			
Lee Creek	.....	15,000	.....
Tough Creek	.....	15,000	.....
Tributaries of Waterton River:			
Yarrow Creek	.....	.....	15,000
Spring Creek	.....	.....	5,000
Carpenter Creek	.....	.....	20,000
Trail Creek	.....	.....	10,000
Drywood Creek	.....	.....	25,000
Cottonwood Creek	.....	.....	25,000
North Fork Yarrow Creek	.....	.....	30,000
TOTALS	.....	437,000	313,275

BANFF

RAINBOW TROUT

Tributaries of Bow River:			
Norman Lake	.....	.....	2,400
Jumping Pound Creek	.....	.....	10,000
Muskeg Creek	.....	.....	10,000
Sibbald Creek	.....	.....	15,000
Spring Creek	.....	.....	10,000
Tributaries of the Elbow River:			
Bragg Creek	.....	20,000	.....
Crawford Creek	.....	5,000	.....
Fullerton Creek	.....	5,000	.....
Hidden Creek	.....	10,000	.....
Lotts Creek	.....	.....	15,000
Mays Creek	.....	14,870	.....
McLean Creek	.....	20,000	.....
Mickle Creek	.....	10,000	.....
Pirmez Creek	.....	20,000	.....
Prairie Creek	.....	.....	20,000
Ranger Creek	.....	.....	10,000
Rennick Creek	.....	9,000	.....
Robinson Creek	.....	5,000	.....
Stringer Creek	.....	10,000	.....
Sylvester Creek	.....	.....	20,000
Thomas Creek	.....	10,000	.....
Young Creek	.....	4,925	.....
Tributaries of Highwood River:			
Cataract Creek	.....	.....	16,000
Etherington Creek	.....	.....	16,000
Flat Creek	.....	.....	19,000
Pekisko Creek	.....	.....	19,000
Sullivan Creek	.....	.....	19,000
Tributaries of Milk River:			
Battle Creek	.....	20,000	.....
Greyburn Creek	.....	10,000	.....
Tributary of Old Man River:			
North Willow Creek	.....	.....	16,000

SPECKLED TROUT

Cold Lake	.....	86,220	.....

CUTTHROAT TROUT

Tributaries of Bow River:			
Bowfort Creek	.....	.....	10,000
Bighill Creek	.....	.....	30,000
Cold Creek	.....	.....	25,000
Gap Creek	.....	.....	10,000
Policeman Creek	.....	20,000	.....
Spencer Creek	.....	.....	10,000
Exshaw Lake	.....	.....	30,000
Tributaries of Ghost River:			
Eau Claire Creek	.....	.....	18,000
Hay Meadow Creek	.....	30,000	.....
Lake Creek (North branch of Ghost River)	.....	.....	40,000
Tributaries of Sheep Creek:			
Spring Creek	.....	.....	10,000
North Sheep Creek	.....	.....	25,000
Fisher Creek	.....	.....	25,000
King Creek	.....	.....	10,000
South Sheep Creek	.....	.....	20,000
Blue Rock Creek	.....	.....	10,000
Canyon Creek	.....	.....	10,000
Gorge Creek	.....	.....	10,000
Horse Creek	.....	.....	10,000
Long Prairie Creek	.....	.....	10,000

LOCH LEVEN TROUT

Name of Waters.	Fry	Advanced Fry	Fingerlings, No. 1
Tributaries of Baptiste River:			
Chambers Creek	.....	.....	25,000
Lawrence Creek	.....	.....	18,000
Ruth Creek	.....	.....	12,000
Beaver Lake	.....	.....	10,000
Tributaries of Clearwater River:			
Alfred Creek	.....	.....	10,000
Muskeg Creek	.....	.....	10,000
North Prairie Creek	.....	.....	15,000
Cold Creek	.....	.....	5,000
Moose Creek	.....	.....	5,000
Spring Creek	.....	.....	10,000
Sucker Lake	.....	.....	10,000
Tay Creek	.....	.....	10,000
Tributaries of Red Deer River:			
Horseshoe Lake, No. 1	.....	.....	10,000
Horseshoe Lake, No. 2	.....	.....	10,000
East Stony Creek	.....	.....	25,000
Rainy Lake	.....	.....	10,000
Raven River	.....	.....	25,000
Bearberry Creek	.....	.....	10,000
Smith Creek	.....	.....	10,000
Elder Creek	.....	.....	5,000
Castle Creek	.....	.....	2,000
Bear Creek	10,000	.....	.....
Gibson Creek	.....	.....	3,750
Grant Creek	.....	.....	3,000
Little Red Deer River	.....	.....	16,760
Dogpound Creek	.....	15,000	.....
Swanson Creek	.....	5,000	.....
Fallen Timber Creek	.....	.....	8,400
Stever Creek	.....	.....	6,250
Spring Creek	.....	.....	20,000
Twin Springs	.....	.....	5,000
Wammick Lake, No. 1	.....	.....	2,500
Wammick Lake, No. 2	.....	.....	2,500
Wammick Lake, No. 3	.....	.....	5,000
Wammick Lake, No. 4	.....	.....	5,000
Wammick Lake, No. 5	.....	.....	5,000
Tributary of North Saskatchewan River:			
Lake Wabamun	40,000	.....	.....
Tributary of Battle River:			
Pigeon Lake	40,000	.....	.....
TOTALS	90,000	330,015	860,560

JASPER

RAINBOW TROUT

Tributaries of Embaras River:			
Dummy Creek	.....	5,000	.....
Chance Creek	.....	5,000	.....
Byron Creek	.....	5,000	.....
Mitchell Creek	.....	5,000	.....
Mile 35 Creek	.....	5,000	.....
Mile 31 Creek	.....	5,000	.....
Tributaries of Erith River:			
Halfpenny Creek	.....	2,500	.....
Lovett River	.....	10,000	.....
Pembina River	.....	2,500	.....
Center Creek	.....	5,000	.....
Crooked Creek	.....	2,500	.....
Rainbow Lake	.....	2,500	.....
Tributary of Leyland Creek			
Beaver dam	.....	5,000	.....
Tributaries of Mary Gregg Creek:			
Cabin Creek	.....	5,000	.....
Mary Gregg Lake	.....	5,000	.....
Tributaries of McLeod Riverc:			
Watson Creek	.....	5,000	.....
Hornbeck River	.....	10,000	.....
Sundance Creek	.....	10,000	.....
Tributary of Edson River:			
North Fork Edson River	.....	10,000	.....
Tributary of McLeod River:			
Trout Creek	.....	10,000	.....
Tributary of Sundance Creek:			
Horse Creek	.....	5,000	.....
No Outlet:			
Zanzall Lake	.....	5,000	.....
Deacon Lake	.....	10,000	.....
Tributaries of Trout Creek:			
Five Mile Prairie Creek	.....	5,000	.....
Spreen Creek	.....	5,000	.....

Name of Waters.	Fry	Advanced Fry	Fingerlings, No. 1
Tributary of Wolf River:			
Unnamed creek	.....	5,000	.....
TOTAL	.....	150,000	.....

RECAPITULATION

Name of Waters.	Fry	Advanced Fry	Fingerlings, No. 1
Waterton Hatchery	.....	437,000	313,275
Banff Hatchery	90,000	330,015	860,560
Jasper Hatchery	.....	150,000	.....
TOTALS	90,000	917,015	1,173,835

Fry	90,000
Advanced fry	917,015
Fingerlings, No. 1	1,173,835
Total distribution from the three hatcheries for the fiscal year ended March 31, 1934	2,180,850

*Sec.—section, t.—township, r.—range, w.4m.—west of the 4th meridian.

An explanation as to the meaning of fry, advanced fry and fingerlings might not be amiss for those inexperienced in fish culture work. Fry, as classified in hatcheries throughout the Dominion, are fully developed free-swimming fish ready to take food but which have not been systematically fed. Advanced fry are young fish which have been fed for a period of two weeks after they have developed to the free-swimming stage. Number one fingerlings are fish that have been fed from two to eight weeks.

Owing to the shortness of Alberta summer seasons and the necessity of making distribution before the natural food supply has become scarce in the streams, as is generally the case in the fall of the year, it is almost impossible to retain fry and fingerlings in this Province for a longer period.

To be assured of distribution for the 1934 season arrangements were again made during the month of September through the Department of Fisheries, Ottawa, for a supply of eggs for next season's stocking. It was found, however, that owing to the limited capacity of the game fish hatcheries within the parks orders for supplies had to be regulated accordingly. Numbers arranged for next season's distribution were as follows:

Hatchery	Number	Species
Waterton	700,000	Rainbow trout eyed eggs
Waterton	300,000	Cutthroat trout eyed eggs
Banff	450,000	Rainbow trout eyed eggs
Banff	400,000	Cutthroat trout eyed eggs
Banff	500,000	Loch Leven trout eyed eggs
Banff	100,000	Speckled trout eyed eggs
Jasper	200,000	Rainbow trout eyed eggs
TOTAL	2,650,000	

As previously explained, the Lesser Slave Lake hatchery was not operated during the year, except for the short period from the 1st April, 1933, until the fry hatched during the winter were liberated. The number of eyed whitefish eggs in the Slave Lake hatchery totalled 114,985,000 at the end of March. As these eggs were close to the hatching stage, no further loss occurred after that date and the total number were liberated as fry in Lesser Slave Lake, the distribution being spread over the greater part of that area. Hatching commenced during the week ending April 22nd and was completed during the week ending May 20th. Distribution of the fry began on April 27th and was completed on May 22nd. Immediately following completion of the distribution the equipment was overhauled and cleaned. The machinery was also given necessary attention and the staff, with the exception of the superintendent, was dismissed. During the summer months the superintendent was engaged part time in an examination of a number of streams throughout the district and also in

improving the hatchery grounds and repainting windows and trimmings of the building. He was also engaged at time in assisting the local inspector in enforcing regulations throughout the district and acting as caretaker of the hatchery and equipment.

Whitefish River, 50 miles north of Grouard, in October. Showing traps and nets used in collection of whitefish eggs for the Lesser Slave Lake Hatchery

In addition to the restocking carried on from the various hatcheries the following waters were examined with a view to determining their suitability for fish life or for the introduction of a new species:

Cream Puff Lake
Tongue Creek
Shaw's Creek
Narrows Creek
Sterling Lake
Cardinal Lake
Frederickson's Lake
Johnson's Lake
Williamson's Lake
McArthur Lake
Doussault Lake
Brightbank Lake
Duhamel Lake
Arnault Lake
Lily Lake
Unknown Creek
Martin River
Assineau River
Kennedy's Pond
Prairie Creek
Lake No. 10
Little Island Lake
Arthur Lake
Town Lake
Lake "C"
Richmond Lake
Reid Lake
Ray's Lake
Bush Lake
Hay Lake

Of these examined, four were found to already contain Arctic grayling but were also suitable for trout. Thirteen were found to be suitable for perch and thirteen unsuitable for any class of fish. Those suitable for trout will be stocked eventually with trout fry from one of the hatcheries. Those suitable for perch will be stocked as quickly as possible by transfer of adult fish from other lakes. In addition to the above examination two lakes were stocked by transfer of perch from other lakes.

It is gratifying to again report that the restocking of streams and the introduction of new species of fish into waters of Alberta and the transfer of indigenous fish into barren waters continues to be most successful. Favourable reports are now being received on the introduction of the Loch Leven trout into the tributaries of the Red Deer River and the North Saskatchewan, as well as continued reports on the success of the introduction of rainbow into the streams in the southern part of the Province. Many testimonials are being received from anglers as to the numbers of large sized trout now being found in a great number of the streams which previously had provided indifferent

fishing. Expansion of this work is anticipated as soon as financial conditions improve.

Bird Sanctuaries and Public Shooting Grounds

Very little difficulty has been experienced during the year in the enforcement of regulations. The general public realizing the value of such areas as nesting grounds, not only for migratory birds but all upland birds as well, appear ready to co-operate by observing the laws which apply. Very few complaints are received regarding poaching.

It is quite evident that bird life will very quickly take advantage of the protection afforded by such sanctuaries as it is noticed that increasing numbers are found each year within their boundaries, the only drawback in this being that crows, magpies, and other destructive birds also learn that they are free from molestation as well.

Due to the continued dry seasons, a condition has developed in many of the sanctuaries and shooting grounds which requires serious consideration. The water areas in two of the sanctuaries and in three of the shooting grounds have gone completely dry, while in many of the others the waters have receded greatly, leaving thousands of acres of dry lake bed, which in many places are becoming badly infested with noxious weeds.

While many varieties of water-fowl, shore birds, waders and gulls—the last named most valuable to the farmer—are found nesting in the vegetation now covering many of the dry areas that are still adjacent to water, and should not, if possible be disturbed, some action will nevertheless become imperative very soon to control the weed menace which has arisen.

The first growth on these dried areas is usually weeds. It is noticed, however, that some which have been dry for a number of years are now producing, where the soil is suitable, heavy growths of wild grass which have smothered out the majority of weeds.

A possible method of combating the weeds on the more recently dried areas in the public shooting grounds might be the granting of grazing and hay permits or perhaps heavy seeding with grass which might eventually give desired results.

Operation of Boats on Lakes and Rivers

Due to the necessity for some control over the operation of motor boats and other small craft on the waters of the Province, regulations were adopted by Order in Council, No. 451, dated May 27th, 1933, responsibility for the administration of which was given to the Fisheries Division.

These regulations becoming effective after motor boat operators had made their provisions for the season no fees were charged for this particular year, but all such owners were instructed as to the requirements before licenses would be granted, reasonable time being given to provide the necessary equipment. The various Fisheries officers in the meantime inspected all such boats and warned operators where necessary as to what was required. At the same time a close check was made on those who in the past were in the habit of operating power boats recklessly to the danger of the public.

Persons operating boats of over five tons displacement came under the federal regulations and were referred to the Department of Marine.

RECORD OF LICENSES ISSUED AND SOLD

Fiscal Year, April 1st, 1933 to March 31st, 1934

Month	Domestic	Fisher-men's	Commer-cial	Angling Permits	Indian Permits	Total
April	11	10	.....	.....	476	497
May	65	98	1	31	148	343
June	79	27	.....	1,275	72	1,453
July	41	23	4	1,511	.....	1,579
August	21	53	9	757	1	841
September	12	16	.....	753	161	942
October	5	12	.....	280	14	311
November	20	51	4	152	16	243
December	142	146	5	43	16	352
January	96	228	1	8	6	339
February	12	14	1	7	.....	34
March	4	42	1	6	.....	53
TOTALS	508	720	26	4,823	910	6,987

In addition to the above, the Forestry Division sold, on behalf of the Fisheries, Angling Permits 397

GRAND TOTAL 7,384

ITEMIZED REVENUE OBTAINED DURING FISCAL YEAR, 1933-34

Month	Fisher-men's Licenses	Domestic Licenses	Commer-cial Licenses	Angling Permits	Sales	Sundry	Total
April	$ 50.00	22.00	.....	.....	$ 7.00	$ 16.66	$ 95.66
May	490.00	130.00	$ 10.00	$ 62.25	.....	16.66	708.91
June	135.00	158.00	.....	2,554.50	15.10	16.66	2,879.26
July	115.00	82.00	40.00	3,040.25	17.50	16.66	3,311.41
August	265.00	42.00	90.00	1,528.75	23.70	16.66	1,966.11
September	80.00	24.00	.....	1,515.75	35.52	16.66	1,671.93
October	60.00	10.00	.....	568.00	20.25	20.16	678.41
November	255.00	40.00	40.00	304.00	97.89	16.66	753.55
December	730.00	284.00	50.00	86.00	2.50	16.66	1,169.16
January	1,140.00	192.00	10.00	16.00	19.50	16.66	1,394.16
February	75.00	24.00	10.00	14.00	6.00	16.66	145.66
March	215.00	8.00	10.00	12.00	1.00	51.39	297.39
TOTALS	$3,610.00	$1,016.00	$260.00	$9,701.50	$ 245.96	$ 238.15	$15,071.61

Inspection of Revenue

REPORT OF THE INSPECTOR OF REVENUE, R. J. DEAN

At the time the control of the natural resources passed from the Dominion to the Province, it was considered expedient, because of the very unsatisfactory conditions of many of the royalty, rental and sale accounts, to appoint an Inspector of Revenue.

It was his duty to look after the interests of the Department in so far as this and other revenue was concerned. He was also required to carry out audits of the books or records of all companies operating on Crown lands paying a royalty to the Government, the coal-mining and oil producing industry being the chief factors in this regard.

On the date of the transfer of the resources a total of 251 active coal-mines and 85 producing gas and oil wells existed in the Province, the books of which had not heretofore been examined by a representative of either the Dominion or Alberta Government. This work alone entailed a very great deal of time and effort, results of which may be found in the different statements contained in this report. Since the above date the number of Alberta mines and wells has considerably increased.

In addition to the foregoing, the work of this branch of the Department includes the following duties:

The carrying out of special investigations and reporting on complaints made by individuals or companies against the Department;

The investigation and report on conflicting applications for leases of Crown lands and any other application for lease or permit of an unusual nature;

The supervising of all collections made by the field inspectors in connection with school lands revenue;

The collections of all ground rentals in the town of Canmore, Alberta, held under lease from the Government;

The collection of arrears of royalty and rental on coal-mining and petroleum and natural gas leases, as well as the securing of returns of operations from delinquent companies.

During the year 1931 well-head sales of Turner Valley naphtha became a very active industry. This fuel, being of an excellent quality and of an exceedingly high specific gravity, could be used without the necessity of refining, scrubbing or other processing as a motor fuel. For this reason the full amount of the Government tax was imposed.

Farmers purchased large quantities of naphtha for industrial purposes. Authorized dealers who could purchase this fuel tax free were now exploiting the industry. They camouflaged the naphtha by mixing it with distillates and sold it wholesale and retail as a motor distillate, tax free.

In an investigation made in 1932 it was discovered that there were seventeen different kinds of motor fuel being sold in the Province, tax free.

Mention of this particular situation is made by reason of the fact that during 1931 and the early part of 1932 many audits covering gasoline tax were made by this Department for the Deputy Provincial Secretary. These audits entailed very little extra work as the revenue in both instances is derived from the sale of the product. The appended figures will reveal results of these audits.

During the fall of 1933 three inspectors were loaned from the Department of Municipal Affairs and were engaged in the collection of school lands revenue in the Edmonton district alone. This undertaking was more or less of an experiment and despite the fact that the field men were faced with adverse weather conditions, the results were so gratifying that the Department decided to extend the collection work to all the land districts, namely, Edmonton, Calgary, Lethbridge and Peace River the following year.

Below is a summary of the collections made by these three inspectors for the months they were engaged in this work:

Total School Lands revenue collected October, November and December, 1933		$37,785.82
Applied 1933	$30,820.82	
Applied 1934	6,965.00	
		$37,785.82

Total grain taken by assignment	3,814.50 bushels
Deeds of surrender obtained	58

The following figures represent unreported revenue payable to the Government, discovered as a result of the audits carried out by this Department from 1931 to 1933:

Unreported coal tonnage discovered after transfer of resources	295,521.81 tons
Revenue represented and collected at 5c and 7c per ton on above	$14,144.64
Unreported royalty collected on sales of oil producing companies at 5 per cent of sales price	4,227.93

It might be in order here to give a few of the major reasons for unreported coal tonnage and naphtha sales.

Coal.

In accordance with the regulations a royalty is payable on all classes of coal mined and sold from Crown lands regardless of the price at which the various grades are sold.

It was found in many instances that mining companies were not paying the Government royalty on sales of slack and nut coal. Others were not paying a royalty on coal supplied officials and employees of the company although the said employees, in many cases, were being charged for the coal. Other companies were not paying a royalty on coal given away in the form of gifts or donations. In some cases coal was being used by mining companies for purposes other than the operation of their plants. All such coal is subject to royalty.

Petroleum and Natural Gas.

Unreported petroleum and natural gas royalties were found largely in the retail sales of producing wells.

Excessive waste and unauthorized deductions made by the companies were not allowed by the Department.

Products of the wells were paid to lessees holding the drilling rights as royalty in kind in lieu of cash transactions and no Government royalty had been paid thereon.

Products of the wells were given to creditors in settlement of trading accounts and Court judgments no no royalty provided for.

Unauthorized deductions such as storage, insurance, haulage, etc., made by companies, included in cost of operation and charged against royalty, were not allowed by the Department.

A number of smaller companies failed to make returns covering their sales.

Miscellaneous Revenue.

Illegal coal-mining on Crown lands, gravel permits and royalties, sale of grain grown on Crown lands in trespass, etc., $642.15.

Gasoline Tax.

During 1931 and the early part of 1932 many of the oil companies were labouring under a misapprehension as to this tax unaware that they were responsible for its collection. New wells coming into production charged the prevailing field price for their product not knowing that the Government tax was included in the price.

Authorized gasoline dealers purchased this naphtha from the well-head, blended same with a distillate and sold the new product as tractor fuel, tax free, whereas the Government tax on the sale of the naphtha should have been protected in the first place.

Naphtha was sold tax free to unauthorized dealers who were misrepresenting themselves to the producers. Operating companies failed to make returns of any description covering this tax.

Total unreported gasoline tax collected for Deputy Provincial Secretary	$26,870.80
Additional unreported gasoline tax uncollected at time of audit	14,680.35
Gasoline tax discovered owing to the Government of Saskatchewan	5,875.65

Revenue statements in detail covering the various Divisions of the Department are compiled and published and are indexed "A" to "M" in the Accounting Division's Section of this report.

Accounting Division

REPORT OF THE CHIEF ACCOUNTANT, I. N. McKINNON

An increased surplus of $185,072.04 over the previous year was shown on income account for the fiscal year ending March 31, 1934.

Revenue for the year was $937,095.80, an increase of $75,618.14; expenditure was $462,407.61, a decrease of $109,453.90, leaving a surplus of $474,688.19.

Total cash received from all sources amounted to $1,068,650.48, particulars of which are given in statements "A" and "B".

Land Patents Branch

Homestead Entries.

Homestead entries granted were 3,706, covering approximately 592,960 acres, an increase of 207 entries from the previous year. Details will be found in statement. "N".

Land Sales.

Amount of principal collected was $7,995.53, an increase of $470.68 over the previous year. Interest amounted to $4,834.89, a decrease of $445.98.

Details of collections for this branch are given under statement "D".

Timber and Grazing Branch

Timber.

Receipts for the year showed an increase of $18,043.69 over the previous year, mostly due to a big increase in the number of railway ties cut.

Timber products manufactured by holders of license and permit berths were as follows:

Lumber manufactured, feet, board measure	44,959,769
Railway ties	750,142
Piling (lineal feet)	18,850
Laths	3,059,926
Mine timber (lineal feet)	163,619
Logs (lineal feet)	2,904

119,327 ties were cut on permits and a further 62,535 under trespass. In addition to the above a considerable quantity of timber was manufactured on school lands and miscellaneous permits, complete details of which are given in the report of the Director of Forestry.

Grazing.

Receipts from grazing leases and permits were $39,963.09, an increase of $2,533.15 over the previous year. Leases in force number 3,492, covering an acreage of 3,118,842 acres.

Details of collections for this branch will be found under statement "E".

Mining Lands Branch

Coal.

Rentals and fees on leases amounted to $121,962.90, a decrease of $3,507.29 from the previous year. Royalties on coal mined on leases and sales were $192, 227.54, an increase of $50,005.74, which was partially due to a change in policy whereby royalties were made payable monthly instead of quarterly,

resulting in the department collecting royalty on coal mined in January and February, 1934, which formerly would not have been payable until April.

Coal produced on leases and sales totalled 2,703,736 tons. Leases in force were 476, covering an acreage of 162,521.15 acres.

Petroleum and Natural Gas.

Collections of lease rentals, etc., show a big increase over the previous year totalling $81,538.52 as against $42,219.51, an increase of $39,319.01. Total royalty collected was $73,548.27, an increase of $365.31. Leases in force were 3,888 covering an acreage of 850,957.78 acres.

Details of revenue collected by this branch are given in statement "F".

School Lands Branch

Sales.

Collections of principal show an increase of $16,070.42, amounting to $56,136.23. Interest collected was $90,772.25, a decrease of $72,103.56. The decrease in interest collected was partly due to a number of farmers being unable to haul their grain before the end of the fiscal year which will reflect in the collections for the ensuing year. A bonus scheme was put into force during the period covered by this report whereby the Department credited an extra dollar for every dollar paid on account of current or arrears interest. This also affected interest collections as those farmers who were in a position to keep up their payments had their interest charges cut in half and were able to apply more on account of principal. The scheme itself was made retroactive to September 1, 1932, and is to continue until March 31, 1935. The total amount of interest bonus credited under the scheme between September 1, 1932 and March 31, 1934 was $188,669.45.

The Alberta School Lands Trust Account as at March 31, 1934, amounted to $15,347,700.27, particulars of which will be found in statement "H".

Arrears interest on sales as at March 31, 1934 was $1,991,935.83 as compared with $2,237,264.92 as at March 31, 1933, details of which are given in statement "I".

Cultivation and Grazing Permits.

Collections amounted to $32,999.87 of which $16,562.12 was carried forward to the next fiscal year to provide for outstanding refunds of taxes which the Department has to make to permit holders for the amount of taxes paid on the cultivated areas.

Forestry Branch

Collections of revenue from the various forest reserves amounted to $43,443.81, an increase of $10,681.48 over the previous year.

Complete details of receipts will be found in statement "J".

Fisheries Branch

Collections amounted to $15,071.61 as compared with $14,739.60 for the previous year.

Details of receipts are given in statement "K".

The Mines Act Branch

Receipts for the year amounted to $6,800.17 as against $6,968.37 for the preceding year.

Details of receipts are given in statement "L".

INDEX TO STATEMENTS

A.—Statement of Cash Receipts by Branches.

B.—Statement of Cash Receipts From all Sources.

C.—Statement of Cash Receipts by Agencies.

D.—Statement of Cash Receipts, Land Patents Branch.

E.—Statement of Cash Receipts, Timber and Grazing Branch.

F.—Statement of Cash Receipts, Mining Lands Branch.

G.—Statement of Cash Receipts, School Lands Branch.

H.—Statement of School Lands Trust Fund Balance Sheet.

I.—Statement of Alberta School Lands Sales Revenue Account.

J.—Statement of Cash Receipts, Forestry Branch.

K.—Statement of Cash Receipts, Fisheries Branch.

L.—Statement of Cash Receipts, Administration of The Mines Act Branch.

M.—Statement of Collections on Tax Recovery Lands.

N.—Statement of Homestead Entries Granted.

O.—Statement of Statistical Summary of Nationalities of Homestead Entrants.

STATEMENT A.

STATEMENT OF CASH RECEIPTS BY BRANCHES

For Period April 1, 1933 to March 31, 1934

Land Patents Branch		$ 74,860.28
Timber and Grazing Branch		175,335.02
Mining Lands Branch		472,350.88
School Lands Branch		241,352.11
Forestry Branch		43,443.81
Fisheries Branch		15,071.61
Petroleum and Natural Gas Division		1,972.02
Administration of The Mines Act Branch		6,800.17
Administration Revenue (Miscellaneous Fees)		566.60
Tax Recovery Branch		10,259.03
Total Cash Receipts Allocated		$1,042,011.53
Unapplied receipts and moneys subject to refund, carried forward from previous year	$26,737.56	
Less Suspense applied and refunded	98.61	
		26,638.95
TOTAL CASH RECEIPTS		$1,068,650.48

STATEMENT B.

STATEMENT OF CASH RECEIPTS FROM ALL SOURCES

From April 1, 1933 to March 31, 1934

INCOME ACCOUNT:	Gross Receipts	Refunds	Net Revenue
Homestead Fees	$ 37,410.00	$ 70.00	$ 37,340.00
Improvement Collection Fees	1,662.55	.....	1,662.55
Unclaimed Improvements	31.09	.....	31.09
Cancellation Fees	2,708.00	8.00	2,700.00
Filing Authority Fees	3,152.02	6.00	3,146.02
General Sales: Interest	4,834.89	.....	4,834.89
Cultivation Fees, Rentals, etc	584.70	267.72	316.98
Surface Rentals	2,821.70	.....	2,821.70
Canmore Rental Account	1,026.67	7.67	1,019.00
Land Patents Sundry	5,561.47	157.50	5,403.97
Fur Farm Fees and Rentals	120.60	.....	120.60
Timber Permits, Fees, Dues, etc.	155,288.17	1,469.39	153,818.78
Grazing Fees, Rentals, etc.	52,996.92	818.20	52,178.72
Hay Permits, Fees, Dues, etc.	3,384.92	105.63	3,279.29
Timber and Grazing Miscellaneous	2,934.74	.....	2,934.74
Coal Mines Act Sundry Revenue	4,954.89	40.00	4,914.89
Coal Fees, Rentals, etc.	122,507.90	1,530.00	120,977.90
Coal-mining Royalty	193,527.82	.....	193,527.82
Petroleum and Natural Gas Fees, Rentals, etc...	81,648.52	203.42	81,445.10
Petroleum and Natural Gas Royalty	73,548.27	.....	73,548.27
Petroleum and Natural Gas Drilling Permits	95.00	.....	95.00
Quarrying Lease Fees and Rentals	1,772.87	45.00	1,727.87
Mining Lands Sundry Revenue	1,487.26	.....	1,487.26
Fishing Licenses	4,886.00	.....	4,886.00
Angling Permits	10,619.50	.....	10,619.50
Fisheries Sundry Revenue	484.11	.....	484.11
Administration Sundry Revenue	566.60	40.60	526.00
School Lands Sales Interest	90,772.25	12.48	90,759.77
School Lands Miscellaneous	80,201.31	2,389.37	77,811.94
Reimbursement of Salaries and Expenses	127.29	.....	127.29
Turner Valley Gas Conservation Board	1,443.25	.....	1,443.25
Tax Recovery Office Fees	1,186.50	81.00	1,105.50
TOTAL INCOME ACCOUNT	$ 944,347.78	$ 7,251.98	$ 937,095.80
CAPITAL ACCOUNT:			
Land Sales: Principal	7,995.53	57.28	7,938.25
TOTAL INCOME AND CAPITAL ACCOUNTS	$ 952,343.31	$ 7,309.26	$ 945,034.05
UNAPPLIED RECEIPTS CARRIED FORWARD: (Subject to Refund)			
Improvements	18,960.59	4,534.19	14,426.40
Suspense	9,457.33	.....	9,457.33
School Lands Cultivation Crop Shares	21,370.34	4,808.22	16,562.12
Land Patents Cultivation Crop Shares	515.39	36.99	478.40
	$1,002,646.96	$ 16,688.66	$ 985,958.30
TRUST ACCOUNTS:			
School Lands Trust Fund	56,136.23	.....	56,136.23
Homesteaders' Trust Moneys	794.76	83.90	710.86
Tax Recovery Lands Trust Account	9,072.53	.....	9,072.53
TOTAL CASH RECEIPTS	$1,068,650.48	$ 16,772.56	$1,051,877.92

STATEMENT C.

STATEMENT OF CASH RECEIPTS BY AGENCIES

April 1, 1933 to March 31, 1934

	Land Patents Branch	Timber and Grazing Branch	Mining Lands Branch	School Lands Branch	Tax Recovery Branch	Total
Edmonton	$ 38,655.97	$123,568.86	$163,891.91	$114,894.80	$ 145.89	$441,156.53
Calgary	11,700.20	18,623.49	233,029.32	82,907.17	480.55	346,740.73
Lethbridge	10,954.09	24,171.83	74,327.36	32,627.24	9,555.20	151,635.72
Peace River	13,550.02	8,970.84	1,103.19	10,888.95	77.39	34,590.39
	$ 74,860.28	$175,335.02	$472,350.88	$241,318.16	$ 10,259.03	$974,123.37

N.B.—Moneys which were paid direct to Administration Office have been allocated to the Agency concerned.

STATEMENT D.

LAND PATENTS BRANCH
STATEMENT OF CASH RECEIPTS
April 1, 1933 to March 31, 1934

	Edmonton	Calgary	Lethbridge	Peace River	Total
Homestead Fees	$21,970.00	$ 5,330.00	$ 3,200.00	$ 6,910.00	$37,410.00
Unclaimed Improvements	31.09	.....	.....	.....	31.09
Improvements	5,573.09	553.00	1,037.30	3,641.15	10,804.54
Cancellation Fees	1,872.00	128.00	18.00	690.00	2,708.00
Filing Authority Fees	1,390.00	622.00	544.02	596.00	3,152.02
General Sales: Principal	3,878.40	903.11	2,654.21	559.81	7,995.53
General Sales: Interest	1,449.13	992.99	1,842.60	550.17	4,834.89
Cultivation Fees, Rentals, etc.	39.09	316.38	509.62	.....	865.09
Surface Rentals	147.86	227.99	137.00	.....	512.85
Canmore Rental Account	.....	1,026.67	.....	.....	1,026.67
Land Patents Miscellaneous	1,809.79	1,566.36	1,011.34	216.75	4,604.24
Homesteaders' Trust Monies	445.52	33.70	.....	315.54	794.76
Fur Farm Fees and Rentals	50.00	.....	.....	70.60	120.60
	$38,655.97	$11,700.20	$10,954.09	$13,550.02	$74,860.28

N.B.—Moneys which were paid direct to Administration Office have been allocated to the Agency concerned.

STATEMENT E.

TIMBER AND GRAZING BRANCH
STATEMENT OF CASH RECEIPTS
April 1, 1933 to March 31, 1934

	Edmonton	Calgary	Lethbridge	Peace River	Total
Timber: Fees, Dues, Royalty, etc.	$117,782.66	$ 5,871.60	$ 63.85	$ 6,811.03	$130,529.14
Grazing: Fees, Rentals, etc.	2,640.89	11,885.56	24,093.48	1,343.16	39,963.09
Hay: Fees, Dues, etc.	1,892.58	453.28	14.50	816.65	3,177.01
Timber and Grazing Miscellaneous	1,252.73	413.05	.....	.....	1,665.78
	$123,568.86	$18,623.49	$24,171.83	$ 8,970.84	$175,335.02

N.B.—Moneys which were paid direct to Administration Office have been allocated to the Agency concerned.

STATEMENT F.

MINING LANDS BRANCH
STATEMENT OF CASH RECEIPTS
April 1, 1933 to March 31, 1934

	Edmonton	Calgary	Lethbridge	Peace River	Total
Coal Fees, Rentals, etc.	$ 64,682.28	$42,801.45	$13,841.45	$ 637.72	$121,962.90
Coal Royalty	71,252.92	81,907.76	38,864.81	202.05	192,227.54
Petroleum and Natural Gas: Fees, Rentals, etc.	26,366.68	35,486.69	19,681.65	3.50	81,538.52
Petroleum and Natural Gas: Royalties	34.40	72,052.27	1,461.60	.....	73,548.27
Quarrying Fees, Rentals, etc.	802.10	592.30	138.55	239.92	1,772.87
Mining Lands Miscellaneous	752.63	188.85	339.30	20.00	1,300.78
	$163,891.01	$233,029.32	$74,327.36	$ 1,103.19	$472,350.88

N.B.—Moneys which were paid direct to Administration Office have been allocated to the Agency concerned.

STATEMENT G.

SCHOOL LANDS BRANCH
STATEMENT OF CASH RECEIPTS
April 1, 1933 to March 31, 1934

	Edmonton	Calgary	Lethbridge	Peace River	Administration Office	Total
Sales: Principal	$ 27,225.58	$22,207.02	$ 3,446.50	$ 3,257.13	.....	$ 56,136.23
Sales: Interest	54,021.57	26,076.75	6,442.06	4,231.87	.....	90,772.25
Cultivation Fees, Rentals, etc.	17,006.77	12,080.14	2,177.06	1,735.90	.....	32,999.87
License of Occupation and Special Leases	131.00	29.84	30.00	5.00	.....	195.84
Timber Permits, Fees, Dues, etc.	6,142.85	283.46	15.50	45.80	.....	6,487.61
Grazing Fees, Rentals, etc.	5,695.49	10,354.29	8,171.19	1,398.75	.....	25,619.72
Hay Fees, Dues, etc.	766.01	136.50	25.75	204.50	.....	1,132.76
Coal Fees, Rentals, etc.	214.50	3,001.28	2,296.23	.....	.....	5,512.01
Coal-mining Royalties	2.40	1,919.78	7,597.95	.....	.....	9,520.13
Petroleum and Natural Gas: Fees, Rentals, etc.	3,582.03	6,378.86	2,412.00	.....	.....	12,372.89
Petroleum and Natural Gas: Royalties	46.60	287.04	.....	.....	.....	333.64
Miscellaneous	60.00	152.21	13.00	10.00	$ 33.95	269.16
	$114,894.80	$82,907.17	$32,627.24	$10,888.95	$ 33.95	$241,352.11

N.B.—Moneys which were paid direct to Administration Office have been allocated to the Agency concerned.

STATEMENT H.

ALBERTA SCHOOL LANDS TRUST FUND
BALANCE SHEET—MARCH 31, 1934

ASSETS			
Cash in Bank and on Hand		$ 8,135.05	
Investments:			
Dominion of Canada Debentures		9,729,634.98	
Accrued Interest		325.79	
Accounts Receivable:			
Provincial Treasurer Income Account	$ 14,778.09		
Undue Principal	3,400,085.46		
Arrears Principal	2,194,749.94		
		5,609,613.49	
			$15,347,709.31
LIABILITIES			
Alberta School Lands Trust Account		$15,347,700.27	
Suspense		9.04	
			$15,347,709.31

STATEMENT I.

ALBERTA SCHOOL LANDS SALES
REVENUE ACCOUNT
FOR THE PERIOD APRIL 1, 1933 to MARCH 31, 1934

Arrears Interest as at March 31, 1933	$2,237,264.92	
Interest charged during period	504,380.56	
Previous Year Refunds	323.00	
Amount owing to School Lands Trust Fund for adjustments between Principal and Interest made during period	14,779.39	
Cash Collections during period		$ 90,759.77
Interest Bonus granted during period		188,669.45
Interest on Cancelled Sales written off		485,382.82
Arrears interest as at March 31, 1934		1,991,935.83
	$2,756,747.87	$2,756,747.87

STATEMENT J.

FORESTRY SERVICE
STATEMENT OF CASH RECEIPTS FROM FOREST RESERVES
April 1, 1933 to March 31, 1934

LAND PATENTS BRANCH:	
Surface Rentals	$ 2,308.85
Miscellaneous Use Permits	947.23
TIMBER AND GRAZING BRANCH:	
Timber Fees, Dues, etc.	24,759.03
Grazing Fees, Rentals, etc.	13,033.83
Hay Fees, Dues, etc.	207.91
Miscellaneous	1,268.96
FISHERIES BRANCH:	
Angling Permits	918.00
	$43,443.81

STATEMENT K.

FISHERIES BRANCH
STATEMENT OF CASH RECEIPTS
April 1, 1933 to March 31, 1934

Angling Permits	$ 9,701.50
Fishing Licenses	4,886.00
Miscellaneous	484.11
	$15,071.61

STATEMENT L.

ADMINISTRATION OF THE MINES ACT BRANCH
STATEMENT OF CASH RECEIPTS
April 1, 1933 to March 31, 1934

Certificate Fees	$1,244.50
Sale of Report Books	1,056.07
Coal Sales Act, Registration Fees	55.00
Coal Leases (Road Allowance) Rental	545.00
Coal Leases (Road Allowance) Royalty	1,300.28
Examination Fees	1,332.00
Miscellaneous	1,267.32
	$6,800.17

STATEMENT M.

STATEMENT OF COLLECTIONS ON TAX RECOVERY LANDS

April 1, 1933 to March 31, 1934

Special Leases	$ 12.84
Improvements	1,202.85
Cultivation Rentals, etc.	3,161.79
Miscellaneous Rentals	66.70
Grazing Rentals, etc.	4,504.10
Timber Permits	33.50
Hay Permits	85.75
Tax Recovery Sundry Revenue	5.00
	$ 9,072.53
Office Fees	1,186.50
	$10,259.03

STATEMENT N.

HOMESTEAD ENTRIES GRANTED

April 1, 1933 to March 31, 1934

	Homesteads	Second Homesteads	Soldier Grants	Total	Entries to Women
Edmonton Land Agency	1,923	255	19	2,197	536
Calgary Land Agency	326	206	1	533	132
Lethbridge Land Agency	125	189	2	316	87
Peace River Land Agency	610	46	4	660	256
	2,984	696	26	3,706	1,011

Had Previous Entry—462.

STATEMENT O.

STATISTICAL SUMMARY OF NATIONALITIES OF HOMESTEAD ENTRANTS

April 1, 1933 to March 31, 1934

Country of Origin	No. of Entries	No. of Souls
Canada	1,208	3,303
England	221	786
Scotland	74	250
Ireland	33	124
Wales	12	35
United States	444	1,611
Africa	2	4
Australia	1	5
Austria	48	192
Belgium	5	17
Czecho-Slovakia	65	223
Denmark	25	61
Esthonia	1	4
Finland	6	18
France	6	24
Germany	72	191
Greece	1	5
Holland	7	21
Hungary	22	93
Iceland	2	2
Italy	6	23
Jugo-Slavia	9	29
Lithuania	16	37
Newfoundland	2	12
Norway	63	224
Poland	240	801
Roumania	14	45
Russia	69	330
Serbia	1	1
Sweden	53	150
Switzerland	9	16
Syria	2	15
Ukrania	245	898
TOTALS	2,984	9,550

ANNUAL REPORT

OF THE

Department of Lands and Mines

OF THE

PROVINCE OF ALBERTA

FOR THE

Fiscal Year Ended March 31st 1935

PUBLISHED BY ORDER OF THE LEGISLATIVE ASSEMBLY

EDMONTON:
PRINTED BY A. SHNITKA, KING'S PRINTER
1936

To the Honourable W. L. Walsh,
Lieutenant-Governor of the Province of Alberta.

SIR:

I have the honour to submit herewith the report of the Department of Lands and Mines for the fiscal year ended March 31st, 1935.

I have the honour to be, Sir,

Your obedient servant,

CHARLES C. ROSS,
Minister of Lands and Mines.

EDMONTON, December 13th, 1935.

TABLE OF CONTENTS

Page

REPORT OF THE DEPUTY MINISTER 9

I.—PROVINCIAL LANDS ADMINISTRATION

Report of the Edmonton Land Agency 27

Calgary Land Agency 29

Lethbridge Land Agency 31

Peace River Land Agency 33

II.—TECHNICAL DIVISION

Report of the Technical Division 36

III.—PETROLEUM AND NATURAL GAS

Report of the Director of Petroleum and Natural Gas 40

IV.—FORESTRY

Report of the Director of Forestry 73

V.—FISHERIES

Report of the Director of Fisheries 103

VI.—ACCOUNTING DIVISION

Report of the Chief Accountant 124

CHIEF OFFICERS,
DEPARTMENT OF LANDS AND MINES
March 31st, 1935

Honourable Hugh W. Allen	*Minister of Lands and Mines*
John Harvie	*Deputy Minister of Lands and Mines*
T. C. Rankine	*Departmental Solicitor*
D. H. Boles	*Director of Lands*
W. Calder	*Director of Petroleum and Natural Gas*
T. F. Blefgen	*Director of Forestry*
J. A. Hutchison	*Assistant Director of Forestry*
R. T. Rodd	*Director of Fisheries*
A. A. Millar	*Chief Inspector, The Coal-mines Regulation Act*
I. N. McKinnon	*Chief Accountant*
J. W. Stafford	*Agent, Edmonton Land Agency*
M. Gossip	*Agent, Calgary Land Agency*
R. Cruickshank	*Agent, Lethbridge Land Agency*
J. J. E. Clarke	*Agent, Peace River Land Agency*
R. J. Dean	*Inspector of Revenue*
F. W. Neilson	*Chief Timber Inspector*
T. W. Dalkin	*Technical Division*
J. L. Irwin	*Statistician*

REPORT

OF THE

Department of Lands and Mines

1934-35

Honourable Charles C. Ross,
Minister of Lands and Mines,
Edmonton.

Sir:

I have the honour to submit the fifth Annual Report of the Department of Lands and Mines for the fiscal year ended March 31st, 1935.

Before giving a résumé of our activities, may I digress to refer to the report of the Royal Commission on the Natural Resources of Alberta under the chairmanship of the Honourable Andrew K. Dysart, Judge of the Court of King's Bench, Manitoba, transmitted the 12th of March, 1935, to the Right Honourable R. B. Bennett, Prime Minister of Canada.

The Commission was instructed to ascertain what consideration should be paid to the Province, in addition to the sums provided in Paragraph 20 of the Natural Resources Agreement, in order that Alberta may be placed in a position of equality with the other Provinces of Confederation with respect to the administration and control of its natural resources as from its entrance into Confederation in 1905.

The Department wishes to express its appreciation to M. M. Porter, K.C., of Calgary, for the excellent way in which the case for the Province was presented. Throughout the whole of the proceedings Counsel for the Province emphasized to the Commissioners that he was there to help them in their many ramifications.

Aside from the large amount of data furnished by the Province as well as the Dominion, Counsel was faced with the necessity of conducting a minute research into the historical background of Confederation and his presentation of the Province's case reveals how thoroughly and efficiently such investigation was conducted.

Our appreciation is likewise extended to James J. Frawley, K.C., Solicitor of the Attorney-General's Department of the Alberta Government, for his long hours of intensive research and compilation of data on a great variety of subjects, and to James C. Thompson, C.A., Provincial Auditor, Province of Alberta, for his valuable assistance in an advisory capacity in all matters relating to finance.

Two Royal Commissions

As requested by the Legislature, a Commission under the chairmanship of the Honourable Albert Freeman Ewing, a Judge of the Supreme Court of Alberta, was established to enquire into the problems of health, education and general welfare of the Half-breed population of Alberta. Negotiations are also pro-

ceeding for a Commission to investigate the coal mining industry of Alberta and it is anticipated that the Enquiry will be held at an early date.

Department's Increased Revenue and Production, 1934-35

The favourable change in last year's economic situation, emphasized in the previous Annual Report, was enhanced throughout the period now under review, presenting as a result a healthy and gratifying outlook in the history of the Department's progress.

Surplus on income account shows once more an increase, which amounts this year to $171,840.78 over the previous total. Revenue was increased by $232,400.35 and whilst there was an increase in expenditure of $60,559.57, a departmental surplus of $646,528.97 is nevertheless revealed which compares most favourably with last year's surplus of $474,688.19.

Improvements in the general situation are demonstrated by other increases, which are as follows: petroleum production, 105,485 barrels; natural gas consumption, 253,683,000 cubic feet; timber revenue, net increase, $71,244.39; commercial fish production, 493,080 pounds with value of increase to fishermen, $14,065.19 and value as marketed, $43,315.53.

Coal produced in the province during the calendar year showed an increase of 34,064 tons. Coke production increased by 10,424 tons but a slight decrease of 198 tons took place in the output of briquettes.

Additional electrical power, increased by 1,835,662 k.w.hrs., was used in the operation of Alberta coal-mines during the calendar year.

Shale mined for this period increased by 10,327 tons with corresponding increases in the number of bricks manufactured which totalled 3,176,972 and of 1,171 tons in the manufacture of tiles.

Report of the Royal Commission on the Natural Resources of Alberta

The Report of the Royal Commission on the Natural Resources of Alberta, which materialized during the period under review, was an event of first importance not only to this Department but also to the Alberta Government.

The function of this Commission was specifically one of arbitration with regard to whether any, and, if any, what consideration, in addition to the sums provided in Paragraph 20 of the Natural Resources Agreement (Statutes of Canada, Ch. 3, 1930) should be paid to the Province in order that Alberta, as previously mentioned, may be placed in a position of equality with the other Provinces of Confederation with respect to the administration and control of its natural resources as from its entrance into Confederation in 1905.

Authorization by Order in Council.—The Commission on the Natural Resources of Alberta was created pursuant to authorization contained in Order in Council, P.C. No. 1588 of July 19th, 1934.

Personnel.—The commissioners appointed were as follows:

The Honourable Andrew K. Dysart, Judge of the Court of King's Bench, Manitoba, Chairman;

George C. McDonald, Esq., Chartered Accountant, Montreal;

Oliver Master, Esq., Chief, Economics Division, Department of Trade and Commerce, Ottawa, Secretary.

Counsel appearing before the Commission for the Dominion of Canada were:
James McGregor Stewart, K.C., Halifax;
C. P. Plaxton, K.C., Senior Advisory Counsel of the Department of Justice, Ottawa.

Counsel appearing before the Commission for the Province of Alberta were:
M. M. Porter, K.C., Calgary;
James J. Frawley, K.C., Solicitor of the Attorney-General's Department, Government of Alberta.

Assisting at the hearings and elsewhere were responsible officials of several Departments of the Dominion and Provincial Governments.

Published Verbatim Reports of the Proceedings before the Commission.—The verbatim Report of the entire proceedings before the Commission has been published in typewritten form in three bound volumes.

Public Sittings.—Public sittings for the reception of evidence and argument were held at Ottawa where, because of the accessibility of records, the convenience of all parties was best served.

Following a preliminary meeting on August 14th, hearings were divided into several periods, which were as follows—October 2nd and 3rd, October 16th to 19th inclusive, November 21st and 23rd, December 4th to 8th inclusive, and December 11th.

The sittings, it will be observed, ranged themselves into several groups, separated from one another by intervals of varying duration. These intervals were required for investigating sources of information and for securing and preparing evidence as the same was requisitioned from time to time during the progress of the Enquiry and as issues emerged and took definite form. The task of procuring and compiling the vast and varied amount of needed information was one of great magnitude and demanded the services of a considerable number of departmental officials for many weeks.

Evidence.—Evidence to be presented before the Commission was divided between statements of Counsel and documentary material. The latter comprised over 250 exhibits covering a wide range of subjects which included maps and graphs, copies of Orders in Council, extracts from public documents, quotations from the public utterances of public men, synopses and analyses of records and complicated tabulations of data.

Expression of Appreciation to the Staff of this Department.—This documentary material was voluminous in size and significant enough with regard to the information it contained to make it the most important part of all the evidence which was submitted.

Its preparation represented a long and most arduous undertaking, which had necessitated considerable overtime on the part of every member of the headquarters' staff of this Department. As a result of this most praiseworthy co-operation, the much needed and extremely satisfactory results, after a period of practically six months, were made possible.

Individually and collectively this co-operation was willingly and efficiently given and I would like to express my very great appreciation for this loyal and most valuable assistance.

Similarity to Saskatchewan Report.—It should be stated that this Report in many sections follows closely, if not identically, the text of the Report of the Royal Commission on the Natural Resources of Saskatchewan. This Enquiry,

which began when the hearings in the Saskatchewan Enquiry had been completed, had to deal with problems closely paralleling those of Saskatchewan, both in respect to historical background and practical difficulties, and has been conducted by three Commissioners of whom two were members of the Saskatchewan Commission. The work of the two Commissions, in the latter stages, was carried on concurrently and the Reports, though separate, covered much common ground in the same or closely similar terms.

Report of the Commission.—The Report of the Royal Commission on the Natural Resources of Alberta, following the submission of all evidence, was published, both in typewritten form in bound volume and in printed form as a Government publication, on March 12th, 1935, upon which date it was presented to the Prime Minister of Canada by the Honourable A. K. Dysart, Chairman of the Commission.

The Report opens with a copy of the letter of presentation to the Prime Minister followed by a copy of the Order in Council, P.C. 1588, July 19th, 1934, which authorized the creation of the Commission. The body of the Report is divided into nine brief chapters concluding with a note by Mr. Commissioner McDonald.

The chapters deal with the following subjects:

Chapter

I. Introductory
II. Control of Natural Resources in Canada
III. The Dominion's control of Natural Resources
IV. The Attitude of the Prairie Provinces
V. The Reference: its Scope and Intent
VI. Alberta's Claims—General Observations
VII. The Claims considered
VIII. Credits claimed by the Dominion
IX. Conclusions and Recommendations
Note by Mr. Commissioner McDonald

Recommendations.—The Commissioners' Recommendation is contained in the last chapter of the Report on page 38. In this section the sum mentioned, which it considers should be paid to the Province of Alberta by the Dominion Government, is $5,000,000. It was also proposed that this sum should bear interest at the rate of five per cent per annum from October 1st, 1930 to March 31st, 1935 and thereafter to such date and at such rate as the two Governments may agree upon. Furthermore, it was recommended that no portion of this sum should be considered as belonging to the Alberta School Lands Fund and also that it should include all sums payable by the Dominion in respect of townsites, mentioned in paragraph 81 of the Report, and other minor adjustments.

The sum of money involved in this recommendation was determined upon as the result of compromise and agreement as to the amount but not by agreement as to the method of calculation, the arithmetic of the case presenting too many variables for two persons to reach a common result in precisely or even closely similar manner. With a given agreement upon the result it was deemed unnecessary to set out individual viewpoints as to the different ways in which the Dominion and Provincial Credits should be respectively compiled. This, it was stated, would open up a problem lending itself to endless variation and consequently to endless controversy.

Provincial Lands Administration

School Lands' Purchasers.—The relief measure crediting an extra dollar for every dollar paid in arrears or current interest, referred to in the previous Annual Report, which was introduced for the benefit of school lands' purchasers, was continued in force during this period under review.

Trend of Settlement.—The decrease of 926 in the general total of first and second homestead entries and soldier grants, as shown in the following statement, is due to the same reason as given in the previous Report, namely, hard times and lack of capital to enable settlers moving their families, goods and chattels into the available areas in the northern portion of the province.

Trend of settlement as in the previous year continued in the direction of Drayton Valley, south of Evansburg. A considerable number of homestead entries were also granted in the Bonnyville area.

Homestead Entries.—First and second homestead entries and soldier grants during the year totalled 2,780 covering an area of approximately 444,800 acres as compared with 3,706 representing an approximate acreage of 592,960 for the previous fiscal year.

Comparative statement showing totals of homestead entries and soldier grants from 1930-31 to 1934-35 follows. Fuller details of this information appear in the land agents' and Chief Accountant's section of this Report and in similar sections of the Annual Reports of preceding years.

HOMESTEAD ENTRIES GRANTED

Fiscal Year	Homesteads	Second Homesteads	Soldier Grants	Total	Homesteads Granted to Women
*1930-31	3,042	557	149	3,748	.....
1931-32	3,876	522	30	4,428	1,521
1932-33	3,112	358	29	3,499	976
1933-34	2,984	696	26	3,706	1,011
1934-35	2,425	325	30	2,780	835
Totals	15,439	2,458	264	18,161	4,343
	Decrease	Decrease	Increase	Decrease	Decrease
This year in comparison with last	559	371	4	926	176

NOTE.—Homesteads for women were not available until 1932. The total number of women's homesteads as shown in the above statement is included in the first homestead total.

Work of the Technical Division

Issue of Notifications.—The following comparative statement shows the number of notifications and acreage covered thereby for the fiscal years from 1930-31 to 1934-35:—

NOTIFICATIONS ISSUED

Fiscal Year	Number of Notifications	Area, Acres
*1930-31	23	3,019.71
1931-32	784	111,424.478
1932-33	1,260	178,887.233
1933-34	1,106	165,224.553
1934-35	1,915	324,611.398
Totals	5,088	783,167.372
Increases this year in comparison with last	809	159,386.845

The above statement reveals a considerable increase both in the number of notifications issued and in the acreage they cover for the year under review.

Amongst special grants issued the most important was one representing an area covering approximately 40,550 acres located in the forest reserve south of

*Six months to March 21.

Kananaskis, now known as the Kananaskis Forest Experiment Station. This was issued to the Dominion Government, the Province of Alberta reserving all mineral rights. The purpose of the transfer had for its objective the carrying out of scientific work in sylviculture with investigation of other phases of forestry such as protection, mensuration and the effects of forests on stream flow and watersheds.

Canmore Townsite.—A change of policy was effected regarding lots originally leased by the Dominion in the Canmore Townsite, when it was considered expedient to sell such lots to the leaseholders. Ninety were disposed of which were covered by eighty-eight notifications.

Work of the Royal Commission.—For a period of practically two months the staff of the Division, with additional help, was engaged in preparing maps, graphs, charts, schedules and statistics in connection with the presentation of the Province's claim against the Dominion for the alienation of the natural resources.

Maps.—Distribution was made to the Land Agencies of 3,000 copies of the new issue of the Lethbridge-Calgary Agency Map. An order for 4,000 copies of a new map for the Edmonton Land Agency was placed with the Dominion Government at Ottawa. During the year the Division collaborated with the Surveyor-General's office at Ottawa for the issue of two maps of the Province of Alberta on scales of thirty-five miles and sixteen miles to the inch.

Maps, plans, sketches and graphs were draughted covering a variety of subjects for the use of the Department and the general public. These included plans for the Half-breed Commission, bituminous sand areas in the north and Alberta oil fields. Engrossing work covering the Speech from the Throne and work of a similar nature was also carried out.

Grazing

The number of requests received for the inspection of grazing applications, the number reported on and the miles travelled to make investigations and inspections for the fiscal year ended March 31st, 1935, were as follows:—

Requests to inspect applications	211
Requests to inspect renewal applications	209
Total	420
Applications reported on	97
Renewal applications reported on	61
Special Reports	9
Supplementary Reports	16
Reports covering Stock Watering Reserves	11
Reports covering Public Grazing Reserves	2
Total	196

MILEAGE

Automobile	3,318
Train	800
Total	4,118

No inspections or investigations were made from July 4th, 1934 to April 30th, 1935.

APPLICATIONS AND RENEWALS FOR GRAZING LANDS

Fiscal Year	
1931-32	741
1932-33	259
1933-34	393
1934-35	420
Total	1,813
Increase this year in comparison with last	27

Petroleum and Natural Gas

Effects of economic depression were still in evidence throughout the year regarding petroleum development and no discoveries of any importance materialized. Small increases, however, were shown in the totals given for oil production and natural gas consumption.

Development Areas.—The greatest drilling activity, as in previous years, took place in Turner Valley with sections 21 and 28 of township 18, range 2, west of the 5th meridian standing out as the centre of development.

In addition to this continued exploration, test wells were drilled in the following areas:—Highwood, the Watson structure near Lundbreck, Cardston, Del Bonita and Twin River, details of which are given in the Petroleum and Natural Gas Division's section of this Report.

New drilling was carried out in the Red Coulee district close to the producing wells. Unfortunately, after a very short and inconclusive test, this was abandoned without any effort being made to break up the sand formation by explosives or other known means used for creating the inflow of oil. Another well is under preparation and it is hoped that the operator will make every effort to thoroughly test all sands which may be encountered in the process of drilling.

A review of the oil well situations as they exist at the present time in Aldersyde, Olds, Brosseau and Athabasca is also made by the Division in their section of this Report.

Well Pressures.—All wells in the Turner Valley field were tested for volume and pressure between August 20th and September 2nd in continuance with the practice of other years.

Maximum pressure wells showed a decline for the year amounting to 185 pounds as compared with wells demonstrating lowest pressures where the loss was only 80 pounds. Based on the total operating days and the total pressures of all wells, the average pressure decline per day for the whole field was .35 pounds per square inch.

An unjustifiable decline in well pressures took place in section 28, township 18, range 2, west of the 5th meridian, the area in which, as already stated, drilling activity in Turner Valley was chiefly centred during this period. The decline was due of course to the intensity of operations in this section which resulted in the obvious fact that an excessive number of wells had been drilled in this particular area. The majority of operators are however not appreciative of the fact that the best naphtha recoveries can only be secured by the maintenance of high back pressures on wells and also that if section 28 had not been operated under quota withdrawals, as set by the Division, the decline in pressure would have been considerably more rapid.

Absorption Plants.—A second absorption plant was constructed on section 4, township 19, range 2, west of the 5th meridian towards the close of the year and a third was projected on the adjoining section 33 in township 18. With these new plants in operation a still greater reduction will result in the wastage of gas thereby extending the period before exhaustion very considerably. This period has been variously forecasted and by now would have been near to an end had not the Provincial Government taken the initiative with regard to its control.

Control of Production by Purchase.—The acquiring by major operating interests of the control by purchase from independent operators of the majority of limestone producing wells constituted an outstanding feature in the Turner

Valley development during the year. By this transaction all naphtha-carrying gas from the transferred wells became available for processing by absorption. So much of the gas volume was released by this arrangement that it exceeded the capacity of the original absorption plant making it necessary for several of the wells to be completely closed in.

The transfer in most cases applied only to production from the limestone, the original owners retaining the right to develop the crude oil horizons present in the overlying formations. The retention of these rights may now act as an incentive for independent operators to concentrate their efforts on crude oil production which can be obtained at a cost per well considerably below the cost per well in drilling to the limestone.

Bow Island Gas Field.—Although the question of gas conservation had for a long while been considered a very important factor towards industrial efficiency in Turner Valley, it was not until 1929 that the first steps were taken to put it into practice.

The operators of the nearby depleted Bow Island gas field then made application to the Dominion Government to have that area classed as a gas repressuring reservation comprised of certain sections in townships 10 and 12, ranges 11 and 12, west of the 4th meridian, such areas to be restricted from mineral leasing.

This application was duly granted under P.C. No. 935, dated May 3rd, 1930, and operations in this particular area for rehabilitating certain wells and the abandonment of others were started at once together with the construction of the necessary repressuring mechanical equipment.

Following this, operations were started within the same year for repressuring the depleted wells and the plant has worked satisfactorily to date. At the end of December, 1934, a total of 7,259,415,000 cubic feet of gas had been forced into the sands resulting in an increased well pressure which rose from 248 pounds to 480 pounds per square inch.

Though the practice of injecting gas into depleted oil and gas sands is not a new one, these operations represented the first attempt ever made in Canada in this respect. Those responsible for this effort are to be commended not only for preventing a small portion of the Turner Valley wastage of gas but also for creating a reserve which, though at present insignificant, will eventually represent a consdierable quantity of gas for future requirements.

The repressuring equipment having worked satisfactorily to date and having apparently given an efficiency greater than the manufacturers' specifications, it is to be hoped that the plant's capacity will be considerably increased in the near future.

Medicine Hat Gas Field.—Confirmation of the satisfactory conditions reported for 1933 by the City of Medicine Hat in the Annual Report of their gas wells was obtained in 1934 by tests supervised by the Divisional staff.

Further slight increases at certain wells in the central area were noted and prove convincingly that the rehabilitation and other work done at the Medicine Hat and Redcliff old wells was timely and fully justified. This also supplies proof that formerly there must have been a considerable wastage of gas underground on account of leakage from defective well casings and distributing pipes.

Exhibits.—At the close of the Petroleum and Natural Gas Division's section of this Report the following exhibits appear:—

EXHIBIT A.—Statistical information covering oil production, analyses of Alberta oils, oil producing wells, gas wells, footage drilled, oil imports to Alberta, gas consumption and value, analyses of natural gas, gas repressuring—Bow Island field, gas well pressures, estimate of withdrawals and waste of gas at Turner Valley wells, Divisional inspection of wells and Divisional geological examinations of well samples;

EXHIBIT B.—"Metering of gas wells", by J. G. Spratt, Divisional Engineer, Petroleum and Natural Gas Division;

EXHIBIT C.—"Turner Valley drilling practice," by Vernon Taylor, Assistant Engineer, Petroleum and Natural Gas Division;

EXHIBIT D.—"Natural gas in Alberta," by F. K. Beach, Office Engineer, Petroleum and Natural Gas Division;

EXHIBIT E.—"Wainwright oil field," by R. M. S. Owen, Assistant Engineer, Petroleum and Natural Gas Division.

PETROLEUM PRODUCTION

Fiscal Year	Naphtha (Barrels)	Light Crude Oil (Barrels)	Heavy Crude Oil (Barrels)	Total (Barrels)
*1930-31	1,496,457	104,183	13,562	1,614,202
1931-32	1,143,875	86,000	16,453	1,246,328
1932-33	810,958	52,238	7,886	871,082
1933-34	1,082,816	54,048	4,609	1,141,473
1934-35	1,192,226	40,346	14,386	1,246,958
Totals	5,726,332	336,815	56,896	6,120,043
	Increase	Decrease	Increase	Increase
This year in comparison with last	109,410	13,702	9,777	105,485

*Under federal administration to October 1st, 1930, and under provincial following that date.

Increased Production, Heavy Crude Oil.—It will be noted from the above statement that the production of heavy crude oil shows an increase of nearly 10,000 barrels as compared with a production decrease of over 3,000 barrels in the preceding year. This is attributable to the erection of the Gold Standard Refineries in Wainwright which was constructed during the period under review and which established a home market for the oil operators in this area. The plant was able to absorb the entire production of the field together with considerable imports of crude oil. Distillates, principally purchased locally by farmers, together with gasoline in smaller quantities, constituted the products of the new refinery.

NATURAL GAS CONSUMPTION

Fiscal Year	Cubic Feet
*1929-30	23,228,637,000
†1930-31	23,312,006,000
1931-32	18,327,139,000
1932-33	16,061,383,000
1933-34	16,346,376,000
1934-35	16,600,059,000
Total	113,875,600,000
Increase this year in comparison with last	253,683,000

*Under federal administration.
†Under federal administration to October 1st, 1930 and under provincial following that date.

Valuations of Petroleum Production and Natural Gas Consumption.—Valuations of naphtha production for the year together with that of light and heavy crude oil and also valuation of natural gas consumption are given in Exhibit A of the Petroleum and Natural Gas Division's section of this Report.

Forest Service

Fire Season.—Precipitation over most of the Province was lighter than usual during the spring of 1934. At this period of the year there were 144 fires which represented 60% of the total for the year. June rains terminated this danger period over all forested territory excepting in the south where rain-fall was insignificant and far from adequate in the matter of forest protection.

A summary of fire losses within and outside Alberta forest reserves from October 1st, 1930 to December 31st, 1934 is given on the next page.

SUMMARY OF FIRE LOSSES WITHIN ALBERTA FOREST RESERVES

Period	Number of Fires	Cost of Suppression	Area (Acres)	Salvable Timber *M.f.b.m.	Salvable Timber (Cords)	Unsalvable Timber *M.f.b.m.	Unsalvable Timber (Cords)	Total Loss
October 1, 1930 to March 31, 1931	9	$ 551.67	41.925	.....	.....	2.00	129.00	$ 71.69
April 1, 1931 to December 31, 1931	31	17,624.12	52,218.05	2,370.5	3,086	6,295.73	111,599.00	154,651.47
January 1, 1932 to December 31, 1932	32	3,491.04	2,555.75	8.00	15,863	3,845.00	1,005.60	8,790.73
JJanuary 1, 1933 to December 31, 1933	39	18,409.92	29,275.88	26.75	1,201	19,188.25	108,414.00	95,796.93
January 1, 1934 to December 31, 1934	47	31,118.51	21,963.00	1,510.00	9,200	2,661.00	209,550.00	96,195.87
TOTALS	158	$71,195.26	106,054.605	3,915.25	29,350	31,991.98	430,697.60	$355,506.69

SUMMARY OF FIRE LOSSES OUTSIDE ALBERTA FOREST RESERVES

October 1, 1930 to March 31, 1931	47	$ 686.64	11,145.19	155.00	.....	3.75	.....	$ 79,950.85
April 1, 1931 to December 31, 1931	591	82,088.89	552,658.07	134,536.00	104,199.00	122,690.5	684,625.5	712,835.79
January 1, 1932 to December 31, 1932	347	15,320.51	133,562.14	274.75	12,215.00	40,627.15	132,743.00	152,085.58
January 1, 1933 to December 31, 1933	249	16,971.75	64,489.12	4,383.50	13,953.50	41,694.50	59,545.00	100,008.43
January 1, 1934 to December 31, 1934	193	7,050.51	36,907.00	3,404.50	3,159.00	547.50	14,464.00	29,825.77
TOTALS	1,427	$122,118.30	798,761.52	142,753.75	133,526.50	205,563.40	891,377.50	$1,074,706.42

SUMMARY OF FIRE LOSSES WITHIN AND OUTSIDE ALBERTA FOREST RESERVES

October 1, 1930 to March 31, 1931	56	$ 1,238.31	11,187.115	155.00	.....	5.75	129.00	$ 80,022.54
April 1, 1931 to December 31, 1931	622	99,713.01	604,876.12	136,906.5	107,285.00	123,986.23	796,224.5	867,487.26
January 1, 1932 to December 31, 1932	379	18,811.55	136,117.89	282.75	28,078.00	44,472.15	133,748.60	160,876.31
January 1, 1933 to December 31, 1933	288	35,381.67	93,765.00	4,410.25	15,154.50	60,882.75	167,959.00	195,805.36
January 1, 1934 to December 31, 1934	240	38,169.02	58,870.00	4,914.50	12,359.00	3,208.50	224,014.00	126,021.64
TOTALS	1,585	$193,313.56	904,816.125	146,669.00	162,876.50	232,555.38	1,322,075.10	$1,430,213.11

*M.f.b.m.—Thousand, feet board measure.

REVENUE, ALBERTA FOREST RESERVES

Source of Revenue	*1930-31	1931-32	1932-33	1933-34		Total	This year in comparison with last	
							Increase	Decrease
Timber Permits	$ 6,159.32	$ 9,358.17	$ 6,096.73	$ 8,834.06	$ 9,935.68	$ 40,383.96	$ 1,101.62	.....
Timber Seizures	5.00	105.46	23.80	43.53	.....	177.79	.....	$ 43.53
Timber Sales	18,416.68	16,809.66	9,748.78	15,881.44	15,660.82	76,517.38	.....	220.62
Grazing Permits	3,416.79	10,394.88	12,098.99	13,033.83	14,838.72	53,783.21	1,804.89	.....
Hay Permits	.....	264.25	208.00	207.91	279.80	959.96	71.89	.....
Fishing Permits	.....	1,342.25	1,087.50	918.00	1,066.50	4,414.25	148.50	.....
Surface Rentals	1,631.84	1,813.21	1,971.28	2,308.85	2,376.19	10,101.37	67.34	.....
Miscellaneous Use Permits	.....	818.08	805.90	947.23	896.83	3,468.04	.....	50.40
Sundry Revenue	218.98	2,622.90	721.35	1,268.96	1,443.14	6,275.33	174.18	.....
Totals	$29,848.61	$43,528.86	$32,762.33	$43,443.81	$46,497.68	$196,081.29	$ 3,368.42	$314.55
							314.55	
						Net increase	$ 3,053.87	

*Six months to March 31.

NOTE: In 1930-31 year, "Timber Permits, $6,159.32" and "Timber Sales, $18,416.68" as given above, are included in the Revenue Statement of the Annual Report (Forestry Section) for that period in the net total appearing under heading of "Timber Permits, Sales, etc."

In 1931-32, year total of "Timber Sales, $16,809.66" includes "Application and Guarantee Deposits, $2,101.50"; "Sundry Revenue, $2,622.90" includes "Sale of Maps, $9.55." These items are shown separately in the Annual Report (Forestry Section) for that period.

In 1933-34 year, total of "Timber Sales, $15,881.44" represents totals of "Timber Sales, $13,556.44" and "Timber Sale Applications and Guarantee Deposits, $2,325.00" given separately in the Revenue Statement (Forestry Section) of this Report.

In 1934-35 year, total of "Timber Sales, $15,660.82" represents totals of "Timber Sales Guarantee Deposits, $1,770.00" and "Timber Sale Dues, $13,890.82" given separately in the Revenue Statement (Forestry Section) of this Report. Also in the same year, "Sundry Revenue, $1,443.14" represents totals of "Sundry Revenue, $952.60" and "Miscellaneous (services and supplies), $490.54," given separately in the Forestry Section.

Grazing on Forest Reserves.—Grazing on forest reserves showed for the period under review an increase in cattle of 2,327 head but a decrease in horses and sheep of 644 and 3,627 respectively. A complete utilization of cattle and horse range was effected during the year in the Cypress Hills and Rocky Mountain forest reserves, in the latter as far north as the Elbow River, a condition which has been unusual in a number of years.

A comparative annual statement covering grazing on forest reserves is given in the Forestry section of this Report.

Timber Industry.—For the first time in several years an appreciable general increase was noted both in the number of operations and in the total output of the majority of timber products. This increase is not borne out by the figures in the tabulated statement which follows for the reason that this particular statement includes only lumber manufactured on timber berths and timber sales and does not include the heavy increased production under special timber permits. The general increase, though not particularly a large one, is to be regarded as satisfactory for the reason that there was not any noticeable improvement in the building and timber using industries.

LUMBER MANUFACTURED FROM PRODUCTS OF TIMBER BERTHS AND FOREST RESERVE TIMBER SALES

Fiscal Year	Licensed and Permit Timber Berths on Provincial Lands *(F.B.M.)	School Lands Timber Berths *(F.B.M.)	Timber cut on Alberta Forest Reserves Timber Sales *(F.B.M.)
*1930-31	20,002,746	627,534	2,849,528
1931-32	36,562,070	1,454,022	808,000
1932-33	45,375,413	277,631	2,372,779
1933-34	44,959,769	290,551	2,289,048
1934-35	41,157,434	935,087	3,225,447
TOTALS	188,057,432	3,584,825	11,544,802
	Decrease	Increase	Increase
This year in comparison with last	3,802,335	644,536	936,399

*Six months to March 31.
†F.B.M.—Feet board measure.

Nursery and Tree Distribution.—The tree nursery operations of the Forest Service were continued on a larger scale than in preceding years at the mental institutes at Oliver and Ponoka. The principal nursery at Oliver from which centre all transplants are shipped and seedlings are provided for the subordinate nurseries where patients from the mental institutes provide the labour under direction.

Improvements during this period were put into effect in the avenue of trees between North Edmonton and Oliver, the first planting of which was made last year. It had been hoped to continue the work to Fort Saskatchewan but the lateness of the season made this impracticable.

Fisheries

Conditions in the Fisheries Division for this year were more satisfactory and prosperous than at any period during the past three years. Many fishermen's conferences were held with a view to removing the overlapping in production from various lakes. Angling showed an increase both in the number of angling permits and licenses issued and in the amount of fish taken.

Commercial Production.—Commercial fishing revealed an increase of 493,080 pounds over the preceding year. The value of this increase to fishermen was

$14,065.19 and the value as marketed $43,315.53. The total production showed increases in whitefish, tullibee, pike and perch with decreases in trout, sucker, ling, goldeye and mullet. Pigeon and Wabamun lakes experienced a much greater number of fishermen employed than in previous years, the numbers in fact exceeding those of any other lake in the Province.

Markets.—A noticeable improvement existed throughout the year regarding markets. Co-operation was brought into effect between the Fisheries Division and operators with a view to meeting requirements wherever possible and granting extensions of closing seasons when and as the market warranted.

Transportation.—Severe winter weather acted very much as a check to the improved methods of transportation, noticeable during recent years, which prevented many pedlars from getting their supplies from favourite lakes.

Domestic Fishing.—Domestic licenses totalled 654 with a catch of 616,840 pounds, the value estimated at $35,343., an increase of 205,590 pounds over the preceding year.

Indian Fishing.—Indian permits showed a reduction of 68 from last year in the total of 842 issued. Fish caught totalled 1,106,275 pounds with an estimated value of $57,976. Several prosecutions were instituted during the year against unscrupulous persons purchasing fresh whitefish caught in close season by Indians.

TOTAL AMOUNT OF FISH TAKEN FOR COMMERCIAL PURPOSES AND ITS VALUE

Fiscal Year	Weight (Lbs.)	Value to Fishermen	Value as Marketed
*1930-31	1,851,848	$ 70,624.00	$ 94,032.00
1931-32	3,337,980	115,928.10	189,927.88
1932-33	2,655,214	94,439.65	130,808.51
1933-34	3,566,356	131,124.35	200,755.24
1934-35	4,059,436	145,189.54	244,070.77
TOTALS	15,470,834	$557,305.64	$859,594.40
Increases this year in comparison with last	493,080	$ 14,065.19	$ 43,315.53

Licenses and Permits.—Annual comparative statement for the fiscal years from 1930-31 to 1934-35 showing totals of licenses and permits issued is given in the Fisheries Division section of this Report.

Angling.—An increase of 270 angling permits issued this year had a corresponding increase of 65,589 pounds in the year's catch for trout, Rocky Mountain whitefish and Arctic grayling. Fishing for rainbow, cutthroat and other types of game fish was exceptionally good during the year and reports from southern Alberta indicated that rainbow trout were thriving and giving greater sport than ever. Angling in this section of the province was in many respects better than it has been for years.

TOTAL AMOUNT OF FISH TAKEN BY ANGLING

Fiscal Year	Game Fish Trout, Rocky Mountain Whitefish and Arctic Grayling (Lbs.)	Other Fish Goldeye, Pickerel, Perch and Pike (Lbs.)	Total (Lbs.)
*1930-31	.....	1,225,000	1,225,000
1931-32	457,975	1,756,919	2,214,894
1932-33	422,638	1,260,034	1,682,672
1933-34	355,000	1,133,730	1,488,730
1934-35	420,589	977,214	1,397,803
TOTALS	1,656,202	6,352,897	8,009,099
This year in comparison with last	Increase 65,589	Decrease 156,516	Decrease 90,927

*Six months to March 31.

TOTAL AMOUNT OF FISH OF ALL CLASSES TAKEN BY ANGLING AND NETS

Fiscal Year	Angling (Lbs)	Domestic Fishing (Lbs)	Indian Fishing (Lbs)	Commercial Fishing (Lbs)	Total (Lbs)
*1930-31	1,225,000	113,200	1,130,000	1,851,848	4,320,048
1931-32	2,214,894	547,078	736,000	3,337,980	6,835,952
1932-33	1,682,672	458,000	860,000	2,655,214	5,655,886
1933-34	1,488,730	411,250	947,635	3,566,356	6,413,971
1934-35	1,397,803	616,840	1,106,275	4,059,436	7,180,354
TOTALS	8,009,099	2,146,368	4,779,910	15,470,834	30,406,211
	Decrease	Increase	Increase	Increase	Increase
This year in comparison with last	90,927	205,590	158,640	493,080	766,383

NOTE: The noticeable decrease in poundage under the heading of Indian fishing which followed the fiscal year 1930-31 is due to the fact that Indian fishing privileges were denied to half-breeds after the close of this period.

Rescue of Fish.—Serious drought conditions in southern Alberta during the last few years have been the cause of much apprehension and continuation of the rescue work in streams threatening to dry out was advantageously accomplished through the season.

Predaceous Fish removed from Trout Waters.—The removal of predaceous fish from trout waters was not so large during the year as in previous years due to the heavy removals of other seasons. Assistance was given in this work by fur farmers who required the suckers to feed their fur-bearing animals.

SUMMARY OF CONFISCATIONS AND PROSECUTIONS FOR INFRACTIONS OF FISHERIES REGULATIONS

Fiscal Year	Confiscations	Prosecutions
*1930-31	29	27
1931-32	40	68
1932-33	68	89
1933-34	53	62
1934-35	59	60
TOTALS	249	306
	Increase	Decrease
This year in comparison with last	6	2

FISH CULTURE—PLANTING OF GAME FISH FRY AND FINGERLINGS INTO PROVINCIAL WATERS OUTSIDE THE NATIONAL PARKS

Fiscal Year	Game Fish (Trout) Number of Plantings	Number of Fry
*1930-31	.....	.....
1931-32	157	2,236,500
1932-33	147	1,960,250
1933-34	168	2,180,850
1934-35	179	2,361,865
TOTALS	651	8,739,465
Increases this year in comparison with last	11	181,015

Lesser Slave Lake Hatchery.—Owing to economic reasons the Lesser Slave Lake hatchery was not operated during the year. Necessary repairs, however, were carried out during the summer and the building was placed in readiness in case it should at any time be needed on short notice for operation.

*Six months to March 31.

EXAMINATION AND STOCKING OF LAKES AND OTHER BODIES OF WATER

Fiscal Year	Lakes and other Bodies of Water examined regarding suitability for Stocking	Number found suitable	Number found unsuitable	Lakes and other Bodies of Water stocked during Season
*1930-31	....	....	....	....
1931-32	37	30	7	4
1932-33	20	9	11	22
1933-34	30	17	13	2
1934-35	15	8	7	27
TOTALS	102	64	38	55

REVENUE OBTAINED FROM FISHING LICENSES, PERMITS, SALES AND SUNDRIES

Fiscal Year	Revenue
*1930-31	$ 4,849.29
1931-32	18,861.22
1932-33	14,739.60
1933-34	15,071.61
1934-35	18,947.76
TOTAL	$72,469.48
Increase this year in comparison with last	$ 3,876.15

*Six months to March 31.

Coal

The output of coal produced in Alberta during the calendar year 1934 was 4,748,848 tons with a valuation of $12,440,616.53, an increase over the preceding year of 34,064 tons. In addition to this tonnage, 3,036 tons were produced by farmers under permit, for their own use, which figure is not included in the total output.

The production of coke is still on the increase. This production is confined to the Crowsnest area for use at the smelter at Trail, B.C. Efforts are also being made to produce coke for domestic purposes but this latter effort is in an experimental stage at present.

Disposition of Coal.—Coal sold for consumption in Alberta during the year totalled 1,087,898 tons; sold to other provinces and the Northwest Territories, 1,561,387 tons; sold for consumption in the United States, 13,739 tons; sold to railway companies, 1,687,850 tons; used for making briquettes, 14,765 tons; used for making coke, 91,745 tons; used under colliery boilers, 175,263 tons; used by colliery railways, 7,088 tons; put to stock, 53,147 tons; put to waste, 112,656 tons. The above tonnages include the coal lifted from stock and waste heaps.

COAL PRODUCTION

Calender Year	Tonnage	Valuation
1930	5,755,911	$19,379,000.00
1931	4,564,290	13,415,745.00
1932	4,870,030	13,441,193.00
1933	4,714,784	12,197,339.20
1934	4,748,848	12,440,616.53
TOTALS	24,653,863	$70,873,893.73
Increases this year in comparison with last	34,064	$ 243,277.33

OUTPUT OF COKE AND BRIQUETTES

Calendar Year	Coke, Tons	Briquettes, Tons
1930	.....	24,111
1931	.....	15,102
1932	2,183	13,582
1933	49,279	16,104
1934	59,703	15,906
TOTALS	111,165	84,805
	Increase	Decrease
This year in comparison with last	10,424	198

Disposition of Electrical Power.—Purchased electrical power used by Alberta coal-mines during the year totalled 19,447,621 k.w. hrs.

ELECTRICAL POWER USED FOR OPERATION OF ALBERTA COAL-MINES

Calendar Year	K.W. hrs.
1930	25,003,606
1931	16,918,625
1932	14,875,890
1933	17,611,959
1934	19,447,621
TOTAL	93,857,701
Increase this year in comparison with last	1,835,662

Electric Cap Lamps.—A number of mines have installed the latest type of electric cap lamps which give from 30 to 50 candle power and which materially increase the lighting effect.

Shale and Clay Mined

During the calendar year 1934, three shale pits produced 13,561 tons of clay and shale from which 4,398,032 bricks and 1,171 tons of hollow tile were made.

SHALE MINED—BRICKS AND TILES MANUFACTURED

Calendar Year	Shale Mined (Tons)	Bricks Manufactured (Number)	Tiles Manufactured (Tons)
1930	67,517	22,007,045	.....
1931	23,855	7,091,080	2,825
1932	8,446	3,444,010	182
1933	3,234	1,221,060	.....
1934	13,561	4,398,032	1,171
TOTALS	116,613	38,161,227	4,178
Increases this year in comparison with last	10,327	3,176,972	1,171

Mines Branch Annual Report.—Statistical information covering Alberta's coal-mining activities and production of shale and clay mined, for the calendar year 1934 is given in complete detail in the published Annual Report of the Mines Branch, Department of Lands and Mines, for this period, which appears as a separate publication to this Report.

Bird Sanctuaries and Public Shooting Grounds

The co-operation of the general public under the headings of bird sanctuaries and public shooting grounds was noticeable by the general absence of infractions in connection with regulations governing the administration of these areas.

Efforts are being made to locate more suitable locations for those sanctuaries suffering from continued drought. Weed menace in the dried out areas points to the necessity for either disposal of the lands or for cropping or grazing until the return of the wet seasons to restore the lakes.

Regulations Appertaining to Pleasure Boats

Regulations appertaining to pleasure boats were enforced for the first time in the province during this year. Inspections were made covering life saving devices necessary to be carried by boats licensed to carry passengers together with precautionary measures which limited numbers of passengers to the size of the craft.

Regulations were also effected for the control of mufflers on motor boats at pleasure resorts in order that the nuisance of open mufflers should be removed.

Individual detailed reports from the various Divisions of the Department follow.

Your obedient servant,

J. Harvie,
Deputy Minister.

September 17th, 1935.

Provincial Lands Administration

REPORT OF THE EDMONTON LAND AGENT, J. W. STAFFORD

A perusal of the Annual Report of the Edmonton Agency for the fiscal year ending March 31st, 1935, which is herewith submitted, will reveal a considerable reduction in the majority of transactions effected, together with a decrease in revenues received.

Revenue totals for 1933-34 and 1934-35 are as follows:—

Fiscal Year	Land Patents Branch	Timber and Grazing Branch	Mining Lands Branch	School Lands Branch	Tax Recovery Branch	Total
1933-34	$36,506.57	$123,579.70	$159,245.74	$ 49,511.99	$133.02	$368,977.02
1934-35	31,624.24	175,304.32	97,389.14	22,822.02	594.64	327,734.36
	Decrease	Increase	Decrease	Decrease	Increase	Decrease
This year in comparison with last	$ 4,882.33	$ 51,724.62	$ 61,856.60	$ 26,689.97	$461.62	$ 41,242.66

The above statement discloses a decrease of $41,242.66 from last year in total revenue received which is principally attributable to the mining lands and school lands branches. An increase of $51,724.62 appears, however, from revenue derived from the timber and grazing branch.

In connection with the granting of homestead entries, a decrease of 465 is shown in the general total of 1,713 in comparison with last year's total of 2,178. Entries granted to women numbered 472 for this year.

In addition to the collection of ordinary revenue together with attention to matters of a routine nature, the following business was transacted:—

Homestead entries granted—1st 1,536, 2nd 177, Total	1,713
Soldier entries granted	18
Applications for petroleum and natural gas rights	6
Applications for coal mining leases	9
Domestic coal permits issued	12
Bar-digging permits issued	4
Certificates of work issued (quartz)	1
Placer mining claims granted	5
Quartz mining claims granted	6
Applications for school lands cultivation permits	120
Applications for provincial lands cultivation permits	7
Applications for grazing permits issued (school lands)	695
Applications for grazing permits issued (provincial lands)	154
Applications for grazing leases (provincial lands)	22
Timber permits issued (provincial lands)	1,741
Timber permits issued (school lands)	214
Permits to operate custom saw-mills	175
Hay permits issued (school lands)	370
Hay permits issued (provincial lands)	641
Number of applications for patent received	810
Number of applications for patent recommended	620
Number of applications for patent dealt with	3,290
Number of applications for patent checked for head office	2,125
Number of applications for cancellation received	839
Number of cancellation proceedings instituted by this office	241
Number of entries cancelled	1,233
Number of timber berths on provincial lands sold	98
Number of timber berths on school lands sold	14
Number of letters received	56,319
Number of letters dispatched	61,827
Number of stencils cut, 181; number of pages mimeographed	55,454
Number of translations for this and other departments	341

The following statement sets forth the amount of revenue collected each month with classification thereof:—

Month	Lands Patents Branch	Timber and Grazing Branch	Mining Lands Branch	School Lands Branch	Tax Recovery Branch	Total
1934—						
April	$ 3,107.64	$ 10,477.88	$ 7,119.59	$ 2,344.08	$ 20.75	$ 23,069.94
May	2,917.09	15,507.98	12,901.03	1,582.43	41.05	32,949.58
June	2,725.44	26,932.68	5,729.91	1,001.64	242.09	36,631.76
July	3,306.62	11,179.94	2,851.10	1,795.14	144.12	19,276.92
Aug.	2,236.25	13,368.34	3,078.62	810.89	30.10	19,524.20
Sept.	2,373.27	4,282.95	11,413.73	412.83	.....	18,482.78
Oct.	2,930.00	8,498.05	6,778.37	916.50	.....	19,122.92
Nov.	3,788.85	19,274.76	9,998.76	1,777.14	50.00	34,889.51
Dec.	3,088.78	8,792.21	8,202.31	2,912.74	17.54	23,013.58
1935—						
Jan.	1,912.81	17,732.27	11,537.60	2,641.99	1.00	33,825.67
Feb.	1,618.19	25,541.91	10,210.97	1,539.46	11.20	38,921.73
March	1,619.30	13,715.35	7,567.15	5,087.18	36.79	28,025.77
Totals	$31,624.24	$175,304.32	$ 97,389.14	$ 22,822.02	$594.64	$327,734.36

These revenues comprise payments on account of land sales, royalties and rentals on coal, petroleum and natural gas leases, rental on grazing leases, fees covering quartz and placer claims, homestead entry fees, payments for the issue of grazing and cultivation permits on school lands and business of a similar nature.

Logging and lumbering operations this year employed an increased number of men and while no material increase is shown in lumber manufactured, a very gratifying increase of approximately 400,000 appears in the manufacture of railway ties.

The following statement shows the products manufactured by the holders of timber berths under yearly license and permits:—

Timber Berths	License Berths	Permit Berths	School Lands Berths
Lumber manufactured F.B.M.*	25,785,818	14,265,499	935,087
Railway ties	154,483	542,342	36,757
Piling, lineal feet	1,250	3,108	.....
Mining timber, lineal feet	6,918	5,140	.....
Laths	4,976,960	990,500	.....
Building logs, lineal feet	.....	256	.....
Fence posts	.....	200	.....
Shingles	350,000	839,500	.....
Shingle bolts, cords	.....	13	.....
Cordwood, cords	379	2,018	18

The total amount of lumber manufactured during the fiscal year on berths is shown to be 40,986,404 feet, board measure, together with a total of 733,582 railway ties.

Miscellaneous permits totalling 1,741 were issued authorizing the cutting of timber on provincial lands with 214 issued on school lands. The quantity of timber authorized to be cut under these permits totalled 18,770,467 feet, board measure, as shown in the following statement:—

Timber Permits	Provincial Lands, Amount Authorized	School Lands, Amount Authorized
Lumber, F.B.M.*	12,055,135	6,715,332
Railway ties	260,305	13,150
Piling, lineal feet	17,520	.....
Mining timber, lineal feet	263,062	30,000
Telegraph and telephones poles	8,383	.....
Building logs, lineal feet	199,846	3,860
Fence rails	1,239,277	1,200
Roof poles	274,298	100
Fence posts	298,129	3,310
Shingles	241,000	9,250
Shingle bolts, cords	8	.....
Cordwood, cords	5,637	959

Timber Permits	Provincial Lands Amount Authorized	School Lands Amount Authorized

*F.B.M.—Feet, board measure.

One hundred and thirty-five seizures were made of timber cut from provincial lands and eleven of timber cut from school lands, as follows:—

TIMBER SEIZURES

Amount of timber covered thereby:—	Provincial Lands	School Lands
Logs, lineal feet	22,588	2,200
Lumber, F.B.M.*	1,964,638	3,500
Fence posts	13,727	.....
Roof poles	86	.....
Fence rails	2,596	40
Ties	27,673	1,669
Cordwood- cords	61	22
Shingles	47,000	.....
Mine props	727	.....

*F.B.M.—Feet, board measure.

A total of 641 hay permits was issued on provincial lands, authorizing the cutting of 6,836 tons, and under authority of which 5,024 tons were cut.

On school lands 370 permits were issued authorizing a total cut of 2,007 tons, in connection with which 1,289 tons were cut.

Four hay seizures covering a total of 66 tons were made on provincial lands together with two covering 30 tons on school lands.

REPORT OF THE CALGARY LAND AGENT, M. GOSSIP

The volume of business in the Calgary Land Office for the fiscal year ending March 31st, 1935 compares very favourably with the immediate three or four preceding years and shows an increased revenue of $15,686.43 over the fiscal year of 1933-34.

Revenue totals for 1933-34 and 1934-35 are as follows:—

Fiscal Year	Lands Patents Branch	Timber and Grazing Branch	Mining Lands Branch	School Lands Branch	Tax Recovery Branch	Total
1933-34	$ 9,023.98	$ 13,216.07	$212,334.69	$ 27,999.99	$442.02	$263,016.75
1934-35	6,784.48	25,255.42	213,283.43	33,110.57	269.28	278,703.18
	Decrease	Increase	Increase	Increase	Decrease	Increase
This year in comparison with last	$ 2,239.50	$ 12,039.35	$ 948.74	$ 5,110.58	$172.74	$ 15,686.43

Owing to increased activity in all branches of the work, but more particularly in connection with the disposal of rights under the petroleum and natural gas regulations the staff of the office has been very busily engaged during the year.

It will be noted from a statement below that 373 applications for petroleum and natural gas leases were filed in the office as compared with 80 such applications during the year ending March 31st, 1934. Included in these applications were 90 parcels disposed of by public tender, comprising an area of 19,650 acres, the bonuses received amounting to $11,349.50 as compared with 25 parcels disposed of last year, comprising an area of 4,580 acres, with bonuses amounting to $6,639.50.

Homestead entries granted only amounted to 333, as compared with 532 for the previous year, showing a decrease of 199. The decrease in this business is partly attributable to the fact that homesteading was discontinued in the greater part of the district on January 2, 1935.

The number of applications for patent received, as well as cancellations accepted, showed an increase, although the number of entries cancelled were somewhat smaller than last year.

The volume of correspondence in the office showed a material increase.

There was no activity in placer or quarts mining during the greater part of the year but several applications have been filed in the office through an

Emergency Recorder, the locations of which cover stakings in an isolated part of the district west of Rocky Mountain House. These claims, however, have not yet been granted.

The following is a statement of the business handled in the Agency during the year in addition to the collection of revenue and the transaction of business of an ordinary routine nature.

STATEMENT OF BUSINESS TRANSACTED

First homestead entries granted	179
Second homestead entries granted	66
First homestead entries granted to women	87
Second homestead entries granted to women	1
Soldier entries granted	4
Applications for grazing leases	90
Applications for petroleum and natural gas leases	373
Petroleum and natural gas leases cancelled	634
Sales of petroleum and natural gas rights	90
Applications for coal mining leases	21
Domestic coal permits issued	34
Coal leases and permits cancelled	64
Quartz applications received	35
Quartz claims granted	1
Placer claims granted	3
Cultivation permits issued on school lands	98
Cultivation permits issued on provincial lands	10
Grazing permits issued on school lands	849
Grazing permits issued on provincial lands	146
Applications for cultivation leases received	446
Timber permits issued	380
Custom saw-mill permits issued	26
Hay permits issued on provincial lands	128
Hay permits issued on school lands	66
Homestead cancellations:—	
Cancellation proceedings instituted by head office	353
Cancellation proceedings instituted on behalf of public	61
Total number of cancellation proceedings instituted	414
Number of entries cancelled	353
Number of letters received	46,592
Number of letters dispatched	55,527

The total revenue received at this office during the year amounted to $278,703.18 and was applied as shown in the statement given below. The revenue increase of $15,686.43, already referred to, was received from the timber and grazing, mining lands and school lands branches.

Statement of the different classes of revenue received during the period of this report is as follows:—

Month	Land Patents Branch	Timber and Grazing Branch	Mining Lands Branch	School Lands Branch	Tax Recovery Branch	Total
1934—						
April	$ 505.66	$ 3,005.88	$ 27,441.57	$ 4,950.37	$ 46.68	$ 35,950.16
May	513.30	1,691.72	23,420.56	4,185.05	31.20	29,841.83
June	1,503.79	2,682.69	13,901.63	1,301.88	23.56	19,413.55
July	554.40	1,416.24	10,133.88	1,950.31	7.40	14,062.23
Aug.	427.70	1,567.86	9,711.94	1,031.03	14.00	12,752.53
Sept.	348.40	1,034.98	16,296.50	926.45	22.72	18,629.05
Oct.	669.40	1,887.84	21,735.79	1,079.13	10.89	25,383.05
Nov.	480.05	2,730.94	20,128.22	1,765.18	.....	25,104.39
Dec.	674.47	3,214.37	15,417.66	2,423.70	10.32	21,740.52
1935—						
Jan.	311.87	2,045.96	18,336.53	1,916.51	6.00	22,616.87
Feb.	338.94	2,471.54	18,808.28	2,543.27	29.28	24,191.31
Mar.	456.50	1,505.40	17,950.87	9,037.69	67.23	29,017.69
Totals	$6,784.48	$25,255.42	$213,283.43	$ 33,110.57	$269.28	$278,703.18

Some improvement was evidenced in timber activities during the year, more especially in railway tie production, but no material advancement can be expected in such industry until general conditions improve.

The following statements cover such operations in this District during the year, viz:—

TIMBER PRODUCTS MANUFACTURED BY HOLDERS OF TIMBER BERTHS UNDER YEARLY LICENSE AND PERMIT

	License Berth	Permit Berth
Lumber manufactured, F.B.M.*	641,900	464,217
Lumber sold, F.B.M.*	1,891,576	499,619
Saw logs cut, lineal feet	21,086	18,303
Saw logs manufactured, F.B.M.*	15,853	14,658
Railway ties manufactured	2,795	18,351
Railway ties sold	2,795	18,351
Mine ties manufactured	.....	95
Mine ties sold	.....	95
Lath manufactured	95,000	.....
Lath sold	95,000	.....
Mine timber manufactured, lineal feet	.....	102,090
Mine timber sold, lineal feet	.....	102,090
Cordwood cut, cords	64	.....
Cordwood sold, cords	64	.....
Shingles manufactured	.....	85,000
Shingles sold	.....	85,000

TIMBER PRODUCTS MANUFACTURED BY HOLDERS OF SCHOOL LANDS TIMBER PERMITS

Railways ties	1,500
Cordwood, cords	194
Lumber, F.B.M.*	63,010
Mining timber, lineal feet	56,000
Fence rails	150
Fence droppers	1,600

TIMBER PRODUCTS MANUFACTURED BY HOLDERS OF PROVINCIAL LANDS TIMBER PERMITS

Cordwood, cords	713
Fence posts	27,060
Building logs, lineal feet	14,776
Lumber, F.B.M.*	282,815
Roof poles	2,041
Mine timber, lineal feet	257,642
Rails	4,570
Railway ties	31,393
Shingle bolts, cords	25
Lagging, cords	34

*F.B.M—Feet, board measure.

SCHOOL LANDS TIMBER SEIZURES

Number of seizures		3
Poles	460	
Rails	100	
Wood, cords	3	

PROVINCIAL LANDS TIMBER SEIZURES

Number of seizures		12
Logs, lineal feet	500	
Mine timber, lineal feet	19,730	
Railway ties	1,230	
Wood, cords	36	

HAY PERMITS ISSUED

	Provincial Lands	School Lands
Number	128	66
Tons of hay covered by permits	2,443	1,017

REPORT OF THE LETHBRIDGE LAND AGENT, R. CRUICKSHANK

The business of this office for the fiscal year ending March 31st, 1935, as shown by the following information, indicates an increase in the volume of work over the preceding year with a revenue increase of $5,247.20.

Revenue totals for 1933-34 and 1934-35 are as follows:

Fiscal Year	Land Patents Branch	Timber and Grazing Branch	Mining Lands Branch	School Lands Branch	Tax Recovery Branch	Total
1933-34	$ 7,513.83	$14,835.98	$ 69,177.21	$ 21,074.52	$7,002.13	$119,603.67
1934-35	6,670.86	19,348.33	66,489.98	25,265.75	7,075.95	124,850.87
	Decrease	Increase	Decrease	Increase	Increase	Increase
This year in comparison with last	$ 842.97	$ 4,512.35	$ 2,687.23	$ 4,191.23	$ 73.82	$ 5,247.20

The total revenue derived from the business of this agency as shown in the revenue statement of the report does not include the amounts which have been remitted direct to head office.

The following outlines the business transacted in addition to the collection of ordinary revenue and work of a routine nature:—

STATEMENT OF BUSINESS TRANSACTED

Applications for grazing leases	294
Application for cultivation leases	289
Applications for petroleum and natural gas leases	124
Applications for coal mining leases	7
Applications for placer mining	1
Gravel permits	1
Domestic coal permits	30
Provincial lands grazing permits	271
School lands grazing permits	477
Provincial lands cultivation and grazing permits	201
School lands cultivation and grazing permits	71
Timber permits on provincial lands	16
Timber permits on school lands	2
Hay permits on provincial lands	5
Hay permits on school lands	3
Permits to cultivate land confined within the boundaries of ranches	8
Number of applications for patent received	164
Number of applications for patent recommended	118
Number of applications for cancellation received	11
Number of cancellation proceedings instituted by this office	67
Number of entries cancelled	101
Number of soldier grant entries granted	3
Number of first homestead entries granted	61
Number of second homestead entries granted	52
Number of homestead entries to women	31
Number of applications to purchase	4
Provincial lands cultivation and grazing leases	66
School lands cultivation and grazing leases	78
Number of letters received	28,508
Number of letters despatched	30,644
Grazing leases covering 2,177,999 acres	1,618
Coal mining leases covering 5,757.98 acres	60
Coal mining berths covering 2,239 acres	11
Miscellaneous leases	30

Most of the homestead entries were filed on land made available by the cancellation of grazing leases and abandoned pre-emption entries. The privilege of homesteading on land contained within the boundaries of this district terminated on the 31st December, 1934. A decrease of 253 in total of all entries granted is shown for this year.

The total revenue received at this office during the year was $124,850.87 and was applied under the headings as shown by monthly distribution in the statement shown below. The revenue increase of $5,247.20, already referred to, is distributed over collections from the timber and grazing, school lands and tax recovery branches. This increase is due to prompter payment of grazing rentals, increased interest in acquiring land for grazing purposes and a trend toward improved general conditions.

Statement of the different classes of revenue received during the period of this report is as follows:—

Month	Land Patents Branch	Timber and Grazing Branch	Mining Lands Branch	School Lands Branch	Tax Recovery Lands	Total
1934—						
April	$ 430.80	$ 1,285.42	$ 5,212.85	$ 2,990.39	$1,093.02	$ 11,012.48
May	538.50	1,132.36	3,629.78	1,022.40	375.40	6,698.44
June	387.40	1,247.51	4,233.91	1,840.35	817.70	8,526.87
July	296.27	863.01	5,371.53	2,307.99	315.35	9,154.15
Aug.	201.84	4,486.14	5,461.37	1,258.71	113.61	11,521.67
Sept.	471.50	663.22	7,213.37	1,212.60	113.77	9,674.46
Oct.	650.92	1,295.33	10,555.87	2,813.64	272.77	15,588.53
Nov.	722.76	1,835.44	5,321.46	1,968.71	436.76	10,285.13
Dec.	1,260.44	1,490.99	3,935.03	1,581.06	757.90	9,025.42
1935—						
Jan.	485.90	1,711.90	4,900.22	952.73	370.67	8,421.42
Feb.	690.38	919.94	6,483.53	2,071.99	815.42	10,981.26
March	534.15	2,417.07	4,171.06	5,245.18	1,593.58	13,961.04
Totals	$ 6,670.86	$19,348.33	$ 66,489.98	$ 25,265.75	$7,075.95	$124,850.87

TIMBER PERMITS ISSUED

	Provincial Lands	School Lands
Timber Permits issued	16	2
These Permits cover as follows:—		
	400 pine poles	400 fence posts
	100 fence posts split	8 cords of wood
	88 cords of wood	
	200 fence posts round	

TIMBER SEIZURES

	Provincial Lands	School Lands
Number	Nil	Nil

HAY PERMITS

	Provincial Lands	School Lands
Number	5	3
	70 tons of hay	45 tons of hay

HAY SEIZURES

	Provincial Lands	School Lands
Number (tons)	Nil	Nil

REPORT OF THE PEACE RIVER LAND AGENT, J. J. E. CLARKE

The report of the Peace River Land Agency for the fiscal year ending March 31st, 1935 shows, in comparison with the preceding year, an increase in revenue amounting to $3,830.47.

Revenue totals for 1933-34 and 1934-35 are as follows:—

Fiscal Year	Land Patents Branch	Timber and Grazing Branch	Mining Lands Branch	School Lands Branch	Fur Farm	Total
1933-34	$11,675.99	$ 6,832.34	$ 805.17	$ 3,106.15	.....	$ 22,419.65
1934-35	12,944.26	8,546.44	484.22	4,230.00	$ 45.20	26,250.12
	Increase	Increase	Decrease	Increase	Increase	Increase
This year in comparison with last	$ 1,268.27	$ 1,714.10	$ 320.95	$ 1,123.85	$ 45.20	$ 3,830.47

Payments for improvements were in a great number of cases made in small instalments as in the previous year. Collections continued to be slow and difficult resulting in a condition which necessitated the writing of a very large number of letters at close intervals.

The total of homestead entries granted for this year shows a decrease of 65 in comparison with last year's figures.

STATEMENT OF BUSINESS TRANSACTED

First homestead entries granted	218
Second homestead entries granted	29
Homestead entries granted to women	244
Soldier entries granted	5
Improvement payments	271
Land Sale payments	26
Cancellation fees	316
Letters of authority to re-file	244
Searches and maps	47
Applications for patent received	1,016
Applications for cancellation received	316
Cancellation proceedings instituted by this office	164
Entries cancelled	703
Cemetery, church and school sites	6
Custom saw-mill permits issued	76
Grazing permits, provincial lands	34
Grazing permits, school lands	143
Grazing rentals, provincial lands	113
Hay seizures and excess dues	20
Timber permits, provincial lands	1,204
Timber permits, school lands	6
Timber seizures dues	56
Hay permits issued, provincial lands	230
Hay permits issued, school lands	69
Timber excess dues	149
Assignment fees re leases	33
Mining fees	2
Mining rentals	8
Mining royalty payments	50

Domestic coal permit	1
Cultivation leases, school lands	37
Cultivation permits, school lands	25
Fur farm application	1
Letters received	26,518
Letters written	28,644

In addition to this business, small items of a miscellaneous nature were also transacted.

The total revenue received at this office during the year was $26,250.12 and was applied under the headings as shown in the statement given below. The revenue increase of $3,830.47, already referred to, is derived from the land patents, timber and grazing, school lands and fur farming branches.

Statement of the different classes of revenue received during the period of this report is as follows:—

Month	Land Patents Branch	Timber and Grazing Branch	Mining Lands Branch	School Lands Branch	Fur Farm	Totals
1934—						
April	$ 1,111.65	$ 1,267.78	$ 97.62	$ 502.26	.....	$ 2,979.31
May	1,057.25	1,024.23	.05	266.71	.....	2,348.24
June	1,186.34	619.65	.90	559.52	$ 39.20	2,405.61
July	1,481.50	562.58	11.00	705.95	.....	2,761.03
Aug.	1,279.70	586.59	4.65	290.03	.....	2,160.97
Sept.	696.86	218.57	55.30	40.62	.....	1,011.35
Oct.	1,096.74	133.25	4.15	9.75	.....	1,243.89
Nov.	1,345.25	445.44	7.60	27.55	.....	1,825.84
Dec.	1,171.69	1,128.71	152.05	270.54	.....	2,722.99
1935—						
Jan.	557.50	501.56	43.60	252.34	3.00	1,358.00
Feb.	1,051.48	730.10	87.95	571.64	.....	2,441.17
March	908.30	1,327.98	19.35	733.09	3.00	2,991.72
Totals	$12,944.26	$ 8,546.44	$ 484.22	$ 4,230.00	$ 45.20	$ 26,250.12

The general total in the above statement is made up of homestead entry fees, payments for improvements, etc., as shown in the schedule of business.

This revenue does not include a number of payments on school lands sales and grazing rentals which were made direct to the head office during this period.

The season of 1934 produced the finest crops of grain and vegetables in every part of the Peace River and Grande Prairie districts that have been seen for a number of years. Evidence of this as far as vegetables were concerned was noticeable by the number of cars which were donated by residents and shipped to drought stricken areas last fall. Owing to the extremely wet autumn, however, a part of the crop was never cut and there was still grain in the stook waiting to be threshed when the snow went in the spring. As a result of the inclement weather the grain which was threshed graded very low and was tough and damp. The weather conditions last fall worked a very severe hardship on the farmers financially, which has naturally reacted on all lines of business including the collections of this office.

The demand for local coal continues in Grande Prairie and adjacent towns. Returns received to date show a slight decrease but there is no doubt that this will be fully covered when all the reports are in. Two coal leases were granted during the last fiscal year within a short distance of Peace River. It was expected that these leases would be operated during the winter now ending, but for some reason development has not taken place. There were 787 applications for patents recommended for final consideration by the Department during the year. All these applications required considerable care and attention and in a large number of cases a great deal of correspondence was necessary before they could be dealt with. One permanent sub-agent is established at Grande Prairie and three timber inspectors and one Fisheries' inspector are authorized to

transact business for this office at different points on certain days during each month. Business is also accepted for this area by head office and by the Edmonton, Calgary and Lethbridge land agencies all of which act in the capacity of sub-agents. This arrangement is beneficial to both the public and to this office in its reduction of counter work, which would otherwise be difficult, if not impossible, with the present staff.

TIMBER PERMITS ISSUED

	Provincial Lands	School Lands
Timber permits issued	1,204	6
These permits cover as follows:—		
Lumber, F.B.M.*	4,433,282	42,992
Building logs, lineal feet	145,463	1,384
Fence rails	40,607	450
Roof poles	6,506	.....
Fence posts	30,305	.....
Cordwood, cords	544	.....
Shingles	103,300	.....
Shingle bolts, cords	96	6
Piling, lineal feet	516	.....
Railway ties	1,618	.....
Telegraph and telephone poles	21,000	.....

TIMBER SEIZURES

	Provincial Lands	School Lands
Number	34	3
Amount of timber covered thereby:—		
Lumber, F.B.M.*	178,175	2,487
Building logs, lineal feet	7,218	1,768
Fence posts	1,987	400
Shingles	124,000	.....
Shingle bolts, cords	13	.....
Railway ties	250	.....
Logs	52	.....

*F.B.M.—Feet, board measure.

HAY PERMITS

	Provincial Lands	School Lands
Number	230	69
Tons of hay covered by permits	3,135½	527

HAY SEIZURES

	Provincial Lands	School Lands
Number	3	1
Tons of hay covered by seizures	17	5

Technical Division

REPORT OF THE TECHNICAL DIVISION, T. W. DALKIN

Notifications (*Land Patents*).—During the fiscal year ending March 31st, 1935, a marked increase over the preceding year was noticeable in the number of notifications issued and the area of land patented as revealed by the following figures:—

Nature of Grant	Notifications	Area (acres)	
Homesteads	1,155	181,627.082	
Sales	51	1,500.003	
Second Homesteads	506	80,125.178	
Soldier Entries	81	13,587.30	
Purchased Homesteads	3	457.81	
Pre-emption Sales	6	926.70	
Special Grants	52	40,806.565	
Exchange of Lands	4	1,121.00	
School Lands Sales	56	4,459.14	
Northern Alberta Railways Company	1	0.62	
Total	1,915	324,611.398	
Sales (Subdivisions)	88		(90 lots in Canmore Townsite)
	2		(Lots in McMurray Townsite)
	1		(Lot in Jarvie Townsite)
Total	2,006		

By way of comparison 1,106 notifications comprising an area of 165,224.553 acres, were issued for the fiscal year ending March 31st, 1934.

The most important of the special grants was issued to the Dominion of Canada upon representations made to the Department by the Hon. T. G. Murphy, Minister of the Interior. This grant covered a large tract of land comprising approximately 40,550 acres located in the forest reserve south of Kananaskis, now known as the Kananaskis Forest Experiment Station. This land (with the exception of mines and minerals) was transferred to the Dominion in order to carry out scientific work in sylviculture and to investigate other phases of forestry such as protections, mensuration and the effects of forests on stream flow and watersheds. The area selected was considered ideally suited for this work, and accordingly a grant was issued for the area, subject, however, to the following clause:—" . . . . if the Grantee, His Successors or Assigns, shall fail to use continuously the said parcel or tract of land herein before described solely for forestry experimental purposes, then in such case these presents and the grant thereby made, shall immediately become and be null and void, and shall immediately revert to and become vested in Us, Our Successors and Assigns, without notice of any nature whatsoever." Due to certain unsurveyed rivers which form boundaries of the area, the figure of 40,550 acres, must only be regarded as approximate.

Most of the other special grants comprised school sites, applications for which had been upon the records for some considerable time owing to the fact that the various school districts were unable through lack of funds, to purchase the lands in accordance with the policy adopted by the Dominion. In order to relieve the situation it was deemed advisable to pass an order in council on January 2, 1935, whereby applications for grants for school site would be issued free of charge upon compliance with the rules and regulations.

Included in the sales were 272.14 acres, more or less, comprising rights of way of the Northern Alberta Railways Company through lands belonging to the

School Lands Endowment Fund. These rights of way were included in the sale of the provincially owned railways.

Under Dominion administration lots in the Canmore townsite were held under lease. After investigation it was found expedient to change this policy and sell the lots to the leaseholders with the result that ninety lots were disposed of and were covered by eighty-eight notifications.

Homestead Entries.—During the year 2,712 homestead entries were checked as to the area covered by each application. Railway rights of way, roadways, power transmission lines, pipe-lines and all previously alienated parcels of land were excepted from the entries, and in cases where homesteads were affected by rivers, the fordableness of same was investigated in order that the entries where possible could be granted to the homesteads on both sides of the rivers.

Revested Soldier Settlement Board Lands.—Further tracts of land have been transferred to this Department by the Soldier Settlement Board. These tracts comprise an area of 29,167.77 acres, more or less, and are covered by 112 loans issued by the Board. The various duplicate certificates of title covering these lands were forwarded to the Land Titles Offices and new duplicate certificates of title received in the right of the province. These duplicates have been duly recorded and show that the lands have been transferred free and clear of all encumbrances. (See Privy Council No. 708—22/8/24.)

Tax Recovery Lands.—An additional area of 5,942.75 acres, more or less, has been transferred to the jurisdiction of this Department from the Department of Municipal Affairs. This area is now administered by this Department and was made available through tax recovery proceedings. A few additional areas in subdivisions were also transferred.

Work for the Royal Commission.—For practically two months the staff of this Division, together with additional help, was engaged in preparing maps, graphs, charts, schedules and statistics in connection with the presentation of the Province's claim against the Dominion for the alienation of the natural resources. This information covered a variety of subjects including maps of the irrigation areas, railway lands' subsidies, patented surface and under rights, mines, and numerous other maps and schedules including soil survey reports, lumber production, and other information. The urgency of this work necessitated considerable overtime upon the part of each member of the permanent staff whose whole-hearted co-operation was most commendable.

Road Diversion Surveys.—Compared with last year there was also a decided increase in the registration of plans of surveys covering new road diversions, a total of 167 plans being recorded affecting 498 parcels of land. In many cases these new surveys affected lands alienated by sales, etc., thus necessitating the filing of quit claims and the payment of compensation. Other new plans recorded covered railway rights of way and station grounds, spur lines, reservoir sites, and pipe-line and transmission line rights of way.

Leases, etc.—Many new leases and licenses of occupation were issued for various purposes. Two of these covered land at the extreme north end of the province, due to the mining activities in the Northwest Territories. In this connection a license of occupation was issued to private interests for the hauling of freight over a portage from Smith Landing Settlement to Fort Smith Settlement. A lease also was issued to the Dominion Government for a tract of land containing 200.50 acres, more or less, adjoining the north boundary of the province to be used as an airport. At the present time applications from the

Department of National Defence are being considered for licenses of occupation to cover gas beacon sites at different points in the Province.

Surveys.—The final surveys of two summer resorts have been completed. One is known as Crimson Lake Resort and is located north-west of Rocky Mountain House in township 40, range 8, west of the 5th meridian. The other is known as Waiparous Townsite and is located in township 27, range 6, west of the 5th meridian at the junction of Ghost River and Waiparous Creek. Applications have been received for various lots in these resorts, it being the policy of the Government to issue leases.

The final plan of survey has been received showing summer camp sites for religious, philanthropic and educational purposes in the north-east quarter of section 6, township 47, range 1, west of the 5th meridian bordering on Pigeon Lake. A lease has already been issued for the Swedish Mission Covenant Church and applications have been received on behalf of the Church of England, the United Church, the Kinsmen's Club of Edmonton, the Red Cross and the Religious Council of Alberta. Ather surveys included the site for a seaplane base at Cooking Lake, and the Blue Diamond coal-mining leases located in unsurveyed territory.

As new township surveys are completed and approved by the Surveyor-General at Ottawa they are recorded here. Two such surveys have been recorded and cover township 38, range 28, west of the 4th meridian, and township 49, range 27, west of the 5th meridian.

Maps.—Three thousand copies of the new issue of the Lethbridge-Calgary Agency Map were received and distributed to the land agencies. An order for four thousand copies of a new map for the Edmonton Land Agency was placed with the Dominion Government at Ottawa. At the present time this Division is collaborating with the Surveyor-General's office at Ottawa for the issue of two new maps of the Province of Alberta on a scale of thirty-five miles to the inch and sixteen miles to the inch. A complete stock of map publications is kept, and during the year supplies of sectional sheet maps, township plans, etc. were received from Ottawa to replenish stock in hand.

Grazing.—Special maps were prepared covering a large part of the province in order to assist the Supervisor of Grazing in making inspections in the field. These maps showed in detail the existing ranches, conflicting applications, and the present standing of lands adjoining the boundaries of same. A large number of descriptions were prepared for grazing leases which included leases in the Tilley East Area and cultivation and grazing leases. In the case of the latter leases, owing to a change of tenure on January 1, 1935, it was necessary to prepare legal descriptions for all cultivation and grazing permits then in existence. Up to the close of this year approximately nine hundred such descriptions have been draughted.

Records.—Progress was again made during the year in the completion of certain records with the result that an entire set of grazing plot books was prepared and forwarded to the Lethbridge Agency showing all the grazing leases in that district. The road plan index started in the previous year has now been completed up to and including range 26, west of the 4th meridian. A new set of recrds has been set up and forwarded to the Mining Lands Division showing the location of all quartz and placer claims. Another set of records has been prepared showing the disposition of all the school lands in the province. These plan records have been forwarded to the School Lands Division.

Forest service records were also given attention whereby a complete set of plan records has been draughted showing the location of all timber berths. Legal metes and bounds descriptions were also prepared for the new berths. Other metes and bounds descriptions have been prepared for the various types of surface leases in the forest reserves, and plan records set up showing the standing of lands in these reserves. A beginning has now been made on a further set of records showing by township the stands of timber in the province with a recorded estimate of quantity and type.

Information has been obtained regarding the riparian rights along the Bow and Elbow rivers in the City of Calgary. This necessitated the examination of all the original patents issued by the Crown recorded in the Calgary Land Titles Office, and in some cases an inspection on the ground in order that complete records may be available in dealing with applications to remove gravel from the rivers.

General.—Maps, plans, sketches, graphs, etc. were draughted covering a variety of subjects for the Administration Office, Forestry Division, Mines Branch, Petroleum and Natural Gas Division, Fisheries Division, the land agencies, other offices and the general public, including plans for the Half-breed Commission, tar sand areas in the north, Alberta oil fields, location of school lands' sales and grazing areas in the province. The engrossing of the Speech from the Throne and the farewell address to the Earl and Countess of Bessborough, together with work of a similar nature, was also carried out.

Petroleum and Natural Gas

REPORT OF THE DIRECTOR OF PETROLEUM AND NATURAL GAS, W. CALDER

During the period of this report there were numerous indications which pointed to the fact that general merchandising all over Alberta showed considerable improvement in comparison with recent years and that certain industries were resuming part time operations, all of which suggested a return of public confidence. In oil development, however, the effects of the depression were unfortunately still evident and prospecting operations during the year were limited with no discoveries of importance materializing.

As in previous years the principal drilling activity was carried out in the Turner Valley, the development being centred in section 28, township 18, range 2, west of the 5th meridian and also in section 21 of the same township and range. In the latter section an unexpected extension of the Turner Valley structure was proven which may lead to more southerly development in township 18 and still further south.

In the Highwood area a test well proved the limestone formation at a comparatively shallow depth and although the results were negative except for a flow of gas, the geological information obtained was sufficiently important to anticipate more encouraging results when further prospecting was done by the drilling of other wells in the area.

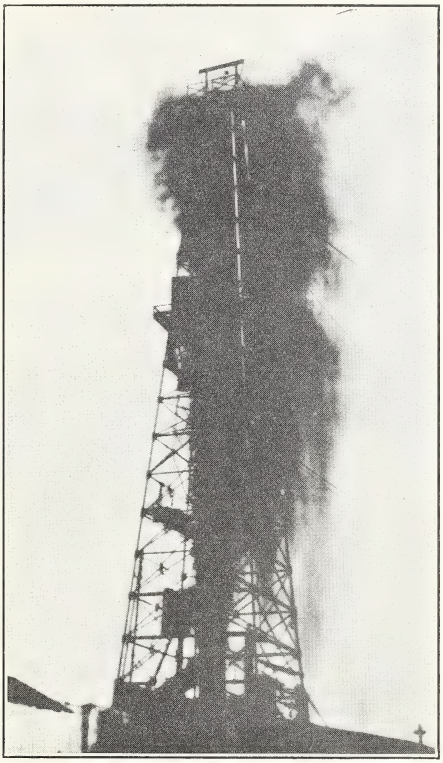
A new district where two tests were begun is that known as the Watson Structure in townships 9 and 10, range 2, west of the 5th meridian, situated about 15 miles north of Lundbreck. For some time previously another test had been in progress on this structure but owing to faulty equipment frequent accidents had held up the drilling. Operations at the two later tests, however, have been more successful and, subject to no unforeseen difficulties, these new wells should give conclusive information during 1935 and possibly open up a new era for development.

A test of considerable interest was started near the town of Cardston in township 3, range 25, west of the 4th meridian. The objective in view was to discover gas for the requirements of the town and to drill a second well later for the purpose of testing the oil prospects of deeper formations. The test well for gas is now over 2,000 feet and it is therefore evident that any oil formations which may be in the area must be very deeply seated.

Preparatory work for a deep test at Del Bonita, township 1, range 21, west of the 4th meridian was all completed during the late autumn but the start of drilling operations had to be postponed on account of bad roads when winter set in. The test, unfortunately, will be drilled with rotary, as at Twin River and Spring Coulee, and undoubtedly information on minor indications of oil and gas will not be obtained. This is very regrettable as the Del Bonita area would appear to be on a continuation of the productive structure which has been developed at Cutbank in Montana.

The second test well at Twin River, township 2, range 20, west of the 4th meridian, also encountered considerable oil and gas with a closed in pressure of 1,140 lbs. per square inch, the indications being similar to those encountered in the first well now abandoned. The oil would appear to have been in sufficient quantity to give a commercial production but as in the first test, the operators

were not satisfied and endeavoured to increase the oil inflow both by shooting and acid treatment. Both of these experiments regrettably had a detrimental effect and for several months all operations have been suspended. In view of the encouraging oil flows met with in both test wells, it is hoped that further tests will be drilled as the indications tend to confirm the presence of an oil pool of considerable magnitude underlying the area.



Roney-Nordon, No. 1.
Section 2 township 2, range 20, west of the 4th meridian. Twin River district, Southern Alberta.
Total depth 3,904′, July 5th, 1933.

Following several years of drilling inactivity a well was started close to the Red Coulee producing wells. During operations a fair thickness of oil-bearing sand was penetrated but unfortunately the well, after a very short and inconclusive test, was abandoned without any effort being made to break up the sand formation either by small charges of explosives or any of the other known means used for creating the inflow of oil from tight formations.

This premature abandonment is to be regretted and shows a great lack of oilfield method as no well showing potential productive formation should be abandoned except after prolonged testing. The operator is now preparing to drill once more and it is hoped that every effort will be made to thoroughly test all sands that may be encountered. As over 200,000 barrels of oil have been

Red Coulee wells, Coutts, Alberta

produced to date from the few wells in the Red Coulee area in Alberta there is ample proof that an extension of the field northward will eventually be developed if only sufficiently prolonged test methods are adopted.

For various reasons the cleaning out and insertion of the new column of casing at the Aldersyde well was considerably delayed. This was satisfactorily completed, however, during the summer and with the well protected to the full depth with casing, attempts were made to continue the deepening. The latter, however, presented a continuous hazard owing to gas pressure lifting the light percussive tools off bottom. As this last danger might have led to a complete loss of the well the operators were recommended and authorized to install a diamond drill which would permit of drilling being continued without any extraordinary risk from a blowout. The operators, unfortunately, do not at present appear able to make the change.

In view of this and fully considering the geological formation and the promising oil and gas indications when drilling was suspended, the satisfactory completion of this well is, in a measure, a provincial obligation. Should the operator, therefore, be unable to continue the work with safe equipment there arises a responsibility on the Government to have this done by taking over any suitable diamond drill equipment not being used in the province and financing the cost of further deepening for at least 1,000 feet, the cost of drilling and any other expense to be a first charge on any production obtained. The suggestion may appear unusual but in view of the danger of the well being lost and development of the area being retarded for years, the suggested co-operation appears fully justified in the interests of the people of Alberta who undoubtedly would benefit should the well be satisfactorily completed.

A prospect of considerable interest is the well located in township 31, range 10, west of the 5th meridian, district of Olds. Prior to the suspension of drilling the strata samples showed favourable geological conditions pointing to the nearness of potential, productive strata. Drilling had to be suspended on account of severe weather, but with an improvement in road conditions it is anticipated that deepening will be resumed in the near future.

After resumption of drilling at the Duvernay-Brosseau well, township 55, range 12, west of the 4th meridian—referred to in last year's report, which showed drilling suspended at 1,463 feet—gas pressure had accumulated with sufficient

force to blow out all mud and water from the well. From geological examination of samples it would appear that the gas came from the Viking sand which was drilled through at about 1,330 feet.

Owing to the unexpectedness of the blowout the well orifice was unprotected by a gate or other closing in apparatus which would have permitted a correct gauging for pressure and volume. This was estimated, however, by the Divisional personnel to be in the neighbourhood of four million cubic feet.

Due to there being no local market for the gas, drilling was continued and although oil indications were reported by the drillers as noted at 1,650 feet and the formation samples showed considerable oil saturation the well was abandoned at 1,682 feet—a depth insufficient to prove the whole series of the potential oil-bearing formation. The well having been abandoned before a conclusive depth had been reached and without any prolonged effort to prove the possibilities of either the gas sand or the underlying oil sands drilled through, the test must be classed as inconclusive. Furthermore, owing to the unexpected blowout of gas, definite proof has been given that any form of water flush drilling should not be used in the drilling of deep wells in unknown territory, particularly while such exploratory wells are passing through potentially productive formations.

During 1932-33 a well drilled in township 66, range 23, west of the 4th meridian, near the town of Athabasca encountered approximately 50 feet of highly saturated oil sand at a depth of 1,640 feet. By advice of the Petroleum and Natural Gas Division a casing had been cemented and set before the sand was penetrated. Due to this precaution the oil was found to be free from water and showed a gravity of 12° Baumé. Production was reported at about 20 barrels per day but, unfortunately, no prolonged test was made to learn the oil inflow.

Early in 1934 deeper drilling was continued and other oil and gas sands were encountered together with a strong feeder of water at 1,770 feet. Limestone formation was entered at 2,185 feet and the formation samples for the first 200 feet showed considerable oil staining. The operator in cementing off the water horizon at 1,770 feet necessarily shut off all higher oil zones. As the cementation was not entirely successful the oil indications noted below the water stratum and in the limestone could not be properly tested. With such detrimental conditions it is not surprising that commercial production was not proven at depth and that the lower part of the well was abandoned to permit the testing of the 1,640 feet horizon. Again due to faulty bottom cementing the water rose in the well and caused continuous caving which prevented any test being made and the well was finally abandoned.

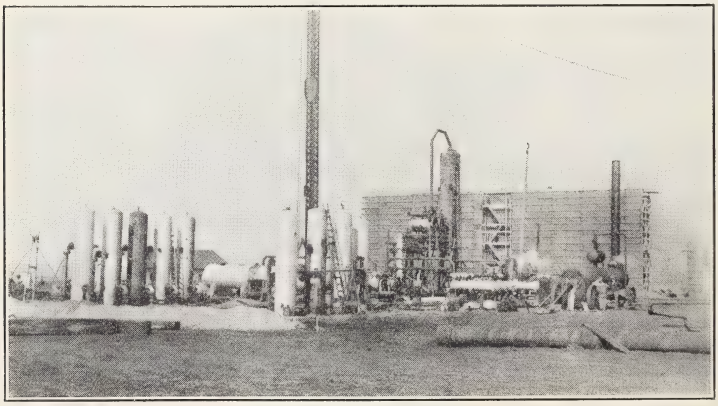
Continuing the previous annual practice, all wells in the Turner Valley area were tested for volume and pressure between the 20th of August and the 2nd of September. The tests showed that in maximum pressure wells the decline for the year amounted to 185 pounds while at wells showing the lowest pressures the loss was only 80 pounds. Based on the total operating days and the total pressures of all wells, the average pressure decline per day for the whole field was .35 pounds per square inch.

During the year the intensive drilling in section 28, township 18, range 2, west of the 5th meridian, has resulted in an unjustified decline in the well pressures of this area and it must be evident to all interested that an excess number of wells have been drilled on this one section. With pleasure it has to be recorded, however, that the majority of operators now fully appreciate that it is only by maintaining high back pressures on the wells that the best naphtha

recoveries can be obtained and also that if section 28 had not been operated under quota withdrawals set by the Division, the decline in pressure would have been considerably more rapid. Late in the year a second absorption plant was erected on section 4, township 19, range 2, west of the 5th meridian, and a further plant is projected on the adjoining section 33, township 18 of the same range. With these new plants in operation a still greater reduction will result in the waste of gas thereby considerably extending the exhaustion period variously forecasted but which now would have been very close had not the Provincial Government taken the initiative in controlling the waste.

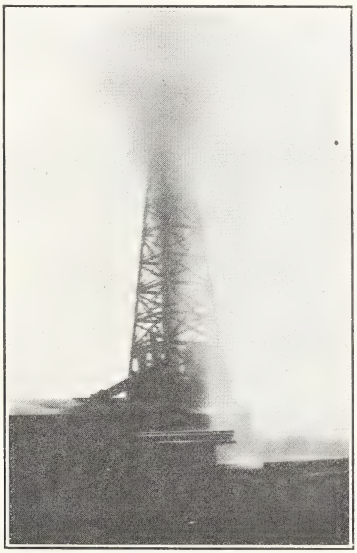
Gas and Oil Products Absorption Plant,
Section 4, township 19, range 2, west of the 5th meridian

An outstanding feature in the Turner Valley development occurred during the year. This was the acquiring by the major operating interests of the control by purchase from independent operators of the majority of limestone producing wells. By this transfer all naphtha carrying gas from the transferred wells is now available for processing by absorption. Further, as the gas volume now available considerably exceeds the capacity of the original absorption plant several wells have been completely closed in.



No. 2, Royalite Absorption Plant,
Section 33, township 18, range 2, west of the 5th meridian

The transfer in most cases only applies to production from the limestone, the original owners retaining the right to develop the crude oil horizons present in the overlying formations. The retention of these rights may now induce the independent operators to concentrate effort on crude oil production which can be obtained at a cost per well considerably below the cost of the wells drilled to the limestone.



Crude oil flowing well,
Turner Valley, United No. 4

Although it was appreciated a long time ago that some constructive effort should be made to conserve the gas being dissipated at the Turner Valley it was only in 1929 that the first steps were taken towards this end. The operators of the nearly depleted Bow Island gas field then making application to the Dominion Government that the area be classed as a gas repressuring reservation, the latter to include the withdrawal of certain sections in townships 10 and 12, ranges 11 and 12, west of the 4th meridian from mineral leasing. The application was duly granted under P.C. Order No. 935, dated the 3rd May, 1930, and operations for rehabilitating certain wells and the abandonment of others were at once commenced together with the construction of the necessary repressuring mechanical equipment.

Turner Valley raw gas carries a considerable quantity of sulphur which is removed by scrubbing. During this process the natural pressure under which the gas issues from the wells is necessarily reduced. The scrubbing plant equipment, however, is so constructed that the scrubbed gas enters the pipe-line at a pressure sufficient to force the gas to the depleted area a distance of 160 miles away. In transit the pressure falls to 60 pounds necessitating mechanical equipment for raising it to exceed that in the repressuring wells.

The Bow Island repressuring plant consists of three 200 H.P., gas engine driven, straight line two stage compression units. In the first stage the pressure

Two views of Repressuring Plant, Bow Island

is raised to 190 pounds and in the second from 190 to 600 pounds and if necessary 800 should this be needed. Each unit is constructed for compressing one million cubic feet per day but under operating conditions the daily injection of gas has considerably exceeded the anticipated gross quantity.

Repressuring operations were started during 1930 and the plant has worked satisfactorily to date. From the time injection was started and up to the end of December, 1934, a total of 7,259,415,000 cubic feet of gas has been forced into the depleted sands with an increase in pressure from 248 to 480 pounds per square inch.

The injection of gas into depleted oil and gas sands is no new practice but this is the first attempt made in Canada. Those responsible for this effort are to be commended as not only have they assisted in saving a small portion of Turner Valley waste gas but also in creating a reserve which although at present insignificant will eventually represent a considerable quantity of gas for future requirements. The repressuring equipment having worked satisfactorily to date and apparently given an efficiency greater than the manufacturers' specifications,

it is to be hoped that the capacity of the plant will be considerably increased in the near future.

The satisfactory conditions reported for 1933 by the City of Medicine Hat in the Annual Report of their gas wells were fully confirmed during the 1934 tests supervised by the Divisional staff. Further slight increases at certain wells in the central area were noted and must now convince everyone that the rehabilitation and other work done at the Medicine Hat and Redcliff old wells was timely and fully justified and that formerly there must have been a considerable wastage of gas underground on account of leakage from defective well casings and distributing pipes.

The Onalto well after having been under Divisional control for a period was transferred back to the leaseholder when the Department of Lands and Mines obtained from the oil sales full payment to liquidate the overdue rentals and royalties together with the Divisional and other expenses made in connection with the operation of the well.

Supplementary reports prepared by members of the Divisional staff dealing with different phases of oil and gas operations in Alberta, together with the usual statistical data dealing with oil and gas production, drilling, and other information, follow this Report.

Exhibit A

1. OIL PRODUCTION FOR FISCAL YEAR

Barrels of 35 Imperial Gallons

Turner Valley, naphtha	1,192,226 bbl.
Turner Valley, light crude	19,827 "
Red Coulee, light crude	20,519 "
Wainwright, heavy crude	13,876 "
Sundry production	510 "
Total	1,246,958 bbl.

2. VALUE OF PRODUCTION 1934-35

Naphtha	$2,757,951.00
Light crude, Turner Valley	41,336.00
Light crude, Red Coulee	27,701.00
Heavy crude—Wainwright and other areas	14,386.00
Total	$2,841,374.00

3. SUMMARY OF OIL PRODUCTION IN ALBERTA

By Fiscal Years

Period	Turner Valley Naphtha	Turner Valley Light Crude	Red Coulee Light Crude	Wainwright Heavy Crude	Ribstone Heavy Crude	Skiff Heavy Crude	TOTALS	
1914-1933	5,722,855	357,757	163,981	54,449	15,074	5,914	6,320,030	bbl.
1933-1934	1,082,816	26,078	27,970	4,609	.....	.....	1,141,473	"
1934-1935	1,192,226	19,827	20,519	13,876	.....	510	1,246,958	"
TOTALS	7,997,897	403,662	212,470	72,934	15,074	6,424	8,708,461	bbl.

SUMMARY OF OIL PRODUCTION IN ALBERTA

By Calendar Years

Period	Turner Valley Naphtha	Turner Valley Light Crude	Red Coulee Light Crude	Wainwright Heavy Crude	Ribstone Heavy Crude	Skiff Heavy Crude	TOTALS	
1914 to 1932	5,530,762	352,677	155,188	52,607	15,074	5,914	6,112,222	bbl.
1933	952,885	23,822	31,057	5,276	.....	.....	1,013,040	"
1934	1,210,766	21,896	20,989	11,779	.....	510	1,265,940	"
1935—3 months	303,484	5,267	5,236	3,272	.....	.....	317,259	"
TOTALS	7,997,897	403,662	212,470	72,934	15,074	6,424	8,708,461	bbl.

4. TYPICAL ANALYSES OF ALBERTA CRUDE OILS

Sample from Field and Horizon	Gravity Degrees A.P.I.*	Specific Gravity	Sulphur %	Water %	Gasoline %	Kerosene %	Gas Oil %	Lubricants %	Gas Oil, Lubricants and residue, unsubdivided	Distillation loss
Turner Valley Crude Oil—										
Dalhousie Sand	50.2	.7787	0.13		69.3	13.5	7.6	7.0	2.5	0.1
Home Sand	40.1	.8245	0.12		33.0	14.6	21.5	17.4	13.0	0.5
McDougall Segur Sand	52.4	.....	.....		71.0	12.0	.....	.....	17.0	0.5
Red Coulee Crude Oil	29.3	.....	.....		19.5	19.8	.....	.....	60.7	....
Wainwright Crude Oil	22.1	.9210	2.22	Trace	14.4	4.5	21.0	25.9	33.3	....
Skiff Crude Oil	20.0	.9340	2.40	Trace	14.8	3.2	17.1	16.2	48.0	0.7
Ribstone Crude Oil	14.5	.....	.....	3.7	2.0	11.4	.....	23.3	59.6	....

*A.P.I.—American Petroleum Institute.

5. OIL PRODUCING WELLS IN PROVINCE

1934-35

	Producing	Shut in	Total
Turner Valley—naphtha and gas	88	7	95
Turner Valley—light crude only	9	....	9
Red Coulee—light crude	6	....	6
Wainwright—heavy crude	8	1	9
Skiff—heavy crude	....	1	1
Totals	111	9	120

6. GAS WELLS NOT INCLUDED WITH NAPHTHA PRODUCING WELLS

	Producing	Shut in	Total
Medicine Hat	46	....	46
Bow Island	....	11	11
Foremost	....	6	6
Milk River area	1	2	3
Viking	23	....	23
Kinsella	....	3	3
Fabyan	2	....	2
Brooks	5	....	5
Wetaskiwin	1	....	1
Totals	78	22	100

7. FOOTAGE DRILLED IN WELLS

Turner Valley area	70,555 feet
Other areas in Province	20,013 "
Total	90,568 feet

8. YEARLY WELL FOOTAGE DRILLED

Total for Province

Fiscal year, 1933-34	82,373 feet
Fiscal year, 1934-35	90,568 "

9. OIL IMPORTS TO ALBERTA

Calendar year 1933	1,266,161 bbl.
Fiscal year, 1934-35	1,891,412 "

10. GAS CONSUMPTION AND VALUE

By fiscal years

		Estimated value at two cents per M.c.f.* at well mouth
Fiscal year, 1933-34	16,346,376 M.c.f.*	$326,927.52
Fiscal year, 1934-35	16,600,059 "	$332,001.18

*M.c.f.—Thousand cubic feet.

11. ANALYSES OF NATURAL GAS

Turner Valley	Methane	Ethane	Propane	Butanes	Pentanes plus	Analyst
From Limestone Maximum	89.8	7.0	4.0	1.8	1.1	P. V. Rosewarne
Minimum	87.0	4.7	3.2	1.3	0.5	"
Mean	88.1	6.2	3.5	1.5	0.7	"
Dalhousie Sand (1 analysis)	85.0	7.4	3.8	2.1	1.7	"

Sulphur content in gas from above the limestone is either nil or very small. Gas from the limestone contains varying amounts of sulphur, but all of it requires scrubbing before transmission for domestic use.

	Specific Gravity	Methane	Ethane	CO_2	O_2	N_2	Analyst
Medicine Hat	0.56	97.8	0.3	0.4	0.0	1.5	R. T. Elsworthy
Foremost	0.61	94.2	0.8	0.3	0.3	4.4	"
Viking	0.64	92.5	3.5	0.5	0.1	3.4	"
Kinsella	.....	92.9	1.0	0.3	0.0	5.8	W. P. Campbell
Range	.....	98.0	....	1.9	0.0	0.1	"

Analyses by Campbell are equated to air free gas.

Range contains 10 or 12 grains of sulphur per 100 C.F.† Others quoted are free or practically free from sulphur.

12. GAS REPRESSURING—BOW ISLAND FIELD

Total gas injected into depleted sands to date equals 7,628,139 M.C.F.* Field pressure at March, 1935 increased to 480 lbs.

13. 1934 GAS WELL PRESSURES IN LBS. PER SQUARE INCH

Turner Valley	1,605 Maximum	445 Minimum
Medicine Hat	408 mean	
Redcliff	408 "	
Bow Island	480 "	
Foremost	583 "	
Viking	605 "	
Kinsella	754 "	

14. ESTIMATE OF WITHDRAWALS AND WASTE OF GAS AT TURNER VALLEY WELLS FOR FISCAL YEAR PERIODS

Fiscal Year	M.C.F.* Withdrawals	M.C.F.* Wasted
1926 (15 months to March 31st, 1926)	10,865,000	5,075,000
1926-27	9,985,000	5,365,000
1927-28	14,270,000	10,310,000
1928-29	23,990,000	13,760,000
1929-30	72,480,000	54,480,000
1930-31	143,890,000	128,460,000
1931-32	157,320,000	145,210,000
1932-33	95,880,000	85,310,000
1933-34	100,870,000	89,640,000
1934-35	87,560,000	76,440,000
Totals	717,110,000	614,050,000

*M.C.F.—Thousand cubic feet. †C.F.—Cubic feet.

15. DIVISIONAL INSPECTIONS OF WELLS

Special	128
General	1,197
Gas Measurements	780
Total	2,105

Additional to the above, special journeys by Senior of Division represent 70 days' absence from Edmonton.

DIVISIONAL GEOLOGICAL EXAMINATIONS OF WELL SAMPLES

Fiscal year, 1933-34	7,373 samples examined
Fiscal year, 1934-35	11,187 " "

Exhibit B.

METERING OF GAS WELLS

BY J. G. SPRATT, DIVISIONAL ENGINEER, PETROLEUM AND NATURAL GAS DIVISION

During the past two years, regulations calling for all gas produced in Alberta to be metered, have been made effective in Turner Valley for the purpose of obtaining more accurate records of gas production. Although objected to by some operators at first, owing to the cost, it is now generally agreed that they are beneficial to the operator as well as to the Department. In the first place, they give the operator a continuous record of the pressure held on the separator and any signs of freezing can be readily detected and overcome, thereby maintaining steady operating conditions on the well, which are essential for best production results. Secondly, as a continuous record of the gas produced along with the naphtha is available, one is able to obtain more efficient recovery in most cases. For example, one company found that once their meter was installed and the well operated under its proper quota, they were able to cut their gas withdrawals almost in half without affecting their naphtha decline.

Thus, they were not only saving gas and maintaining a higher rock pressure but as they cut down their gas production by about 4 million cubic feet, they also cut down a naphtha wastage of around 30 barrels per day, which was not recovered by the separator, but was being lost in the tail gas.

From the point of view of the Department, it is now possible to estimate more closely the reserves of the field as continuous records of the gas produced between known pressure drops are available whereas, prior to meter installations, only occasional "snap" measurements by pitot tube were obtainable on which to estimate production.

Advantages of metering gas from other fields, namely Medicine Hat and Redcliff, can also be cited. At both of these places industrial plants, consisting of brick, tile, sewer piping, potteries, glass manufacturing and flour milling companies, etc. have available free gas provided they drill wells on their own properties. As this gas has been considered "free" and of unlimited reserve by many companies, little attention has been paid to burning it as economically as possible. It is well known, however, that all gas fields have only a limited supply of gas and that supply is gradually being depleted whenever gas is produced. The Dominion Glass Company at Redcliff has installed the first meter for industrial plant purposes the installation being a gas flow air flow orifice meter to control the mixture of gas and air used in their glass furnaces. Since this meter has been installed, they have found it possible to maintain a much more efficient mixture with the result that they now save about thirty-five per cent of the gas previously used, and by means of their control are able to improve the quality of the glass manufactured. Most of the other industries have been closed down for long periods since the depression, but no doubt when business revives, they will profit by the experience of the Dominion Glass Company and meter the gas which they consume.

The City of Medicine Hat is gradually installing a system of metering gas from their wells, and once properly in operation, this system will prove of value in more ways than one. In the first place, they will have a better control on the gas produced from each well or group of wells to see that none are produced excessively. In all up to date gas fields it is now recognized that withdrawals of gas from wells should not exceed twenty-five per cent of the total daily open flow capacity. Excessive producing of a well causes caving necessitating frequent cleaning out, or it may in some cases cause the gas to be sealed off. In other cases, overpulling of wells hastens the appearance of bottom water which if not controlled may completely drown out the gas. Also if a cave is started around the bottom of the casing, water from higher horizons may make its way down around the casing and into the gas horizon. Another advantage of metering wells would be the detection of gas leaks in the gathering and other lines between the wells and points of consumption. The total gas produced from all wells could be checked against a central meter station and if the two did not tally, wells could be shut off until it was learned in what locality the leakage occurred. Apart from the economic aspect of this advantage, the danger to human life from gas explosion due to leaking mains, could be considerably reduced.

The orifice type of meter is used in the majority of cases, although where exceptionally small volumes are produced and steady pressures maintained, displacement meters can be used.

March 20th, 1935.

Exhibit C

TURNER VALLEY DRILLING PRACTICE

BY VERNON TAYLOR, ASSISTANT ENGINEER, PETROLEUM AND NATURAL GAS DIVISION

Prospecting operations for oil were first attempted at Turner Valley during 1912-1914 but, although crude oil and natural gas were discovered, development lagged and it was only in the years 1924-1926 that intensive work was begun. For several years cable tools were used exclusively but latterly both standard cable and rotary equipment have enjoyed equal prominence, and of the last twenty-three rigs started in the Turner Valley, ten were drilled with rotary, eleven with standard cable and two were started with cable and finished with rotary equipment.

At several wells the diamond drill was occasionally used to complete them in the limestone formation. This system was also installed at others for cleaning out bridges, a process which cleaned out and brought the well back to production under greater control. During the last few years, however, with only one exception, the diamond drill has not been used.

Equipment

Cable tools.—Derricks are usually 94 feet high, both steel and wood being used. In a few cases derricks 87 feet and 122 feet have been erected. Heavy rig iron equipment is used entirely with one 65 or 85 H.P. boiler carrying about 150 pounds steam pressure, and a 12″×12″ single cylinder steam engine.

Rotary.—The derricks are usually 122 feet high being constructed either of wood or steel. Occosionally derricks 136 feet in height are erected. The rotary drilling equipment is all heavy duty type and the Haliburton drilling control is used at about 50% of the wells. For steam generation three and sometimes four boilers carrying about 250 pounds steam pressure are installed with 12″×12″ twin cylinder engine. Two slush pumps usually 14½″×7½″×18″ are rigged up. Only one, however, is required, the other serving as a stand-by or auxiliary.

Rotary Drill Stem.—One contractor uses a string of 8″ until the surface string is set after which a 6″ is used to a depth of 2,000 to 2,500 feet. Thereafter 5″ until the 8⅝″ casing is set. If the 8⅝″ casing is set in the lime the well will be completed with a 4″. In some wells oil is used for drilling in the lime formation in which cases a flush joint stem is always used. At several wells a 6″ has been used for drilling from the surface until the 8⅝″ casing is set. In wells where the 6⅝″ casing is cemented and set in the lime the practice is to complete the drilling with a 3″.

Casing Programmes

Cable tools.—A cable tool drilled well is usually spudded with a 20″ hole. In some cases this is increased to 24″. The 20″ hole is carried to a depth where the first casing or surface string has to be landed. In the majority of wells the practice has been to cement and set this pipe below the surface water table so as to keep the hole dry below that depth. In parts of the Home area where the wells started close to the main Cardium sand it was found that this sand at depth carried water and necessitated the water shut off string being set at a lower depth than in other parts of the Valley.

In the south end, which might be called the new area, conditions are a little different and wells start either in Uppermost Benton or in the Basal Belly

River. For those wells starting in sandy parts at the top of the Benton it was recommended that the surface string be cemented below the base of the sandy series. In the first wells which started in Belly River formation it was difficult to foretell where the water horizons might occur and operators set the shut off column at about 500 feet. Later practice showed that water was seldom met below 460 feet and the water shut off column is now set at this point. This column is always cemented with varying amounts of cement, the amounts running between 100 and 250 bags.

After the water string has been set an 18″ hole is drilled to about 1,500 feet when the 16″ column is run. In several wells this pipe was not used and drilling was continued with open hole until the 13⅜″ was run. The 16″ casing is usually allowed to hang free and in the majority of wells is pulled just before the following column is inserted; this being the 13⅜″ which is usually set at or about 2,500 feet. The insertion of the last pipe greatly depends on the formation being drilled and often it is possible to carry the column beyond 2,500 feet by underreaming. This casing is seldom cemented and usually landed and set in clamps or a reganhead in the cellar.

Following the 13⅜″ casing, a 12½″ hole is drilled which will permit the insertion of 10¾″. Most operators endeavour to carry this column to as near the Home sand as possible since the formations below this horizon can be drilled without excessive caving, permitting the 8⅝″ casing to be carried to the top of the limestone. In a few wells the black shales above the Belemnite series, also the "Poker chip" shales, give trouble by caving, more especially where the Dalhousie sands carry crude oil. Where this caving difficulty arises the hole is underreamed so that the 8⅝″ can be carried down and cemented as the producing string. In wells where considerable oil is noted in the Dalhousie sand operators endeavour to estimate the amount of cement so that the oil sand will not be cemented off, the quantity of cement used ranging from 100 to 500 bags.

Rotary.—The general practice is to complete wells with only two strings of casing, the first used for water shut off purposes and the second as the production column. To minimize the possibility of deflection the water shut off column is set at a much greater depth than is customary in cable drilled wells. The diameter of this pipe is usually 13⅜″ which is cemented and set at depths ranging from 500 to 1,200 feet. From the point where the 13⅜″ is set the hole is drilled 11″ in diameter which permits of the production column being carried to the limestone and there securely cemented. The quantity of cement used, ranging from 1,200 to 2,200 bags, is often sufficient to cement the casing solidly to the surface. In wells where the limestone is deeper than 5,500 feet or where drilling difficulties were encountered it was found necessary to insert an extra pipe, the 8⅝″ casing being run to about the depth of the Home sands and there cemented. Thereafter the 6⅝″ is inserted as a production column and is cemented up to the preceding casing.

Drilling Times.—With the lapse of time and improved drilling bits and equipment, a great advance has been made in the last two or three years in reducing the time of drilling. Up to 1929-1931 nine to eighteen months were required to drill in a well. Now the best time has been cut down to 128 actual drilling days or just a little better than four months with a total elapsed time for completion of the well of four months and three weeks. The particular well where this record was attained was 5,657 feet in depth and for drilling time it represents an average daily footage of 44.2 feet. It is difficult to compare the drilling records between rotary and cable tools as various factors

such as small showings of crude oil in upper horizons hinder the progress of the cable drilled well. Regrettably these oil showings are seldom, if ever, noticed in the rotary drilled well. However, for comparison purposes, the data from several wells recently completed in the south end of the Turner Valley is hereunder given.

Cable.—Best working time to the top of the limestone formation at a depth of 5,348 feet was 196 days or an average daily footage of 27.3 feet. For full completion of the well to 5,755 feet 251 days were required, making 17.5 feet an average daily footage for the last three wells completed.

Rotary.—Working time to the top of the limestone at 5,460 feet, 114 days, with average daily footage, 47.9. Average daily footage for completion of well at 6,125 feet, 47.5, with an average daily footage, for the last 5 wells completed, of 34.5.

It is necessary to here mention that two out of the three cable drilled wells used for obtaining the above data encountered drilling troubles which delayed the deepening for a considerable period and thus reduced the average daily footage appreciably. It is also necessary to note that in the five rotary wells used for the average only one was drilled in with oil. For the remainder water was used which penetrated the formation and delayed full production from the well for periods ranging from one to two months. Cable drilled wells being drilled free from water when reaching the productive zone come into full production within a few days of completion.

Drilling Methods

Cable tools.—Drilling methods with cable tools are now fairly standardized and as the territory is becoming better known the drilling crews are attaining greater success. This has been achieved particularly by keeping mud in the hole during all the drilling time, and instead of bailing out all the mud, to allow one bailer to probably be withdrawn and one bailer of water dumped to thin the mud. In formations which do not make mud easily it is a common practice to put a little in to start the drilling. By this method there is a certain mudding effect which has a tendency to minimize caving.

Rotary.—The first part of the hole made in a rotary well is usually cut with a fish tail bit. These bits are specially dressed with stellite (tungsten carbide) to give a good hard cutting surface. Quite often hard formations such as the Belly River sands or sands in the Upper Benton cannot be drilled with these bits and rock bits are used. After the surface or water shut off column is set the hole is reduced to 11″ and in softer formations—such as the Alberta shales —a drag bit is used. This is a K.P. bit which has two removable steel cutters that can be replaced as required. As already stated, however, this bit is usually only used in softer formations. Below this depth rock bits—the Hughes Cone rock bit or the Reed Roller bit—are used almost exclusively and although more expensive they can usually be run for a longer time.

Depending on the formation the footage made by these bits vary. In the Benton runs as high as 160 to 180 feet can be made without pulling out. In the Blairmore-Kootenay the average is reduced to about 50 feet, but in some cases as much as 120 feet have been drilled. The tools in softer formations usually remain in the hole for 36 to 48 hours. In the harder formations (Limy series, upper Dalhousie, Belemnite conglomerate) only a few feet can be made at each run and cones and rollers come out of the hole almost smooth. Similarly in the limestone the footage varies greatly. In some parts of the lime

section very hard bands exist, probably cherty, in which only a foot or so can be made during a run. On the other hand, in some of the porous strata, runs of 150 feet or more have been made.

Another point in improved rotary well drilling technique is the greater care given to drilling mud, it now being realized that this is one of the most important factors in rotary drilling, since poor mud nearly always leads to disaster in one way or another. As an open hole is carried for close to 5,000 feet the importance of the mud is readily seen, especially where cavey shales are encountered which have to be mudded off. In the Turner Valley no mud conditioners are used as good clay can be obtained from certain surface beds in the neighbourhood. The mud prepared from this clay is relatively free from sand and is mixed in boxes by means of steam jets which bubble through the mud and agitate it. Since well pressures in the Turner Valley wells are not now excessive no weighting material is added to the circulating fluid.

Completion Methods

Cable tools.—After the production casing has been cemented and set in the limestone a Christmas tree is assembled. This usually consists of a master gate below the cross, and two side manifold valves with a drilling through valve on top. Another set of valves is rigged at the separator and operating pressures are regulated by these.

Every well is completed with a high pressure control head while drilling in the limestone and it is usually assembled when the first gas is encountered at the top of the formation. This head consists of a cap through which there passes a polished rod assembly, the cap fitting in to a special ring screwed to the casing and is held in place by four clamps. The complete control head is tested for working pressures up to 1,000 pounds and by regulating one of the manifold valves any desired pressure can be maintained inside the casing. By the use of this apparatus there is less chance of the tools being blown up and the drilling line kinked with probable loss of the tools. The usual pressure carried is in the neighbourhood of 500 lbs. and in some cases as much as 700 lbs.

As soon as the main gas horizon is met and a large flow of gas is obtained the well is allowed to blow wide open for a few hours to clean out the debris and then is turned into the separator and a back pressure carried at the well dependent on the areal closed-in pressure. Thus with cable tools the full potential gas and naphtha capacity is attained within the first few days of the well reaching the productive horizon.

Rotary.—After the production casing is cemented and set in the limestone a Christmas tree similar to that rigged up at cable drilled wells is assembled. In some of the most recent drilled wells, however, the well is drilled below the porous zones before the water is bailed out, the assembled Christmas tree only being placed in position when the bailing commences. Formerly when pressures were higher it was necessary to install the Christmas trees before the productive horizons were drilled. This practice was considered necessary to prevent the wells getting out of control.

In rotary wells where oil is used for circulating purposes it is not possible to recover all strata cuttings, the return oil being passed into the separator to remove the gas and permit the oil to be again circulated preventing recovery of the cuttings. Drilling with oil circulating fluid is somewhat slower than with water, but considerable time is gained by the well being brought in in a clean condition and the production at once obtained.

With the possible exception of one well the use of water as a circulating method has had a detrimental effect on the initial production. In the new area the productive zones are below 5,000 feet and some at 6,000 feet. Thus the pressure exerted by water head against the face of the productive horizon at a depth of 5,000 feet is about 2,170 pounds without taking into consideration the pump pressure of 500 or 600 pounds. It will, therefore, be readily appreciated why formations with a rock pressure of less than 1,880 pounds will take water when there is such a differential pressure. It is reasonable to assume that the very porous and fractured strata will take water easily and water will undoubtedly travel further into the formation. Some of the recently drilled wells have taken from 500 to 600 barrels of water per day and over the period of drilling up to 5,000 barrels have been lost.

What effect the lost water has in the formations, has been for some time a subject of much controversy. It will, however, be seen that before maximum production can be obtained at any rotary drilled well this water has to be expelled from the formation. Initial bailing and frequent blowing thereafter brings some part of it out as it has been noted that during the first period of production the amount of naphtha increased after each time the well was blown.

In addition to the water that is forced back into the formation there is also the possibility that the fine particles of cuttings may be carried along with the water and thus tend to partially plug the pores and impede the free gas flow. It has also been suggested that the water may freeze at points back in the formation. It is difficult to appreciate how this can occur during the drilling operations but it is possible during the frequent and long blow downs which are necessary after the well is brought in. However, when such freezing does take place it is eventually thawed out by the application of pressure over a few days. Engineers who have had oilfield experience in other parts of the world have recommended that rotary drilled wells when approaching productive formations should be converted to dry percussive drilling. This suggestion, although slightly increasing the ultimate cost of the well, would certainly remove the danger of drilling water intrusion. Great improvements have recently been made in portable spudding machines and if these could be fitted with larger drilling cable spools they might be adapted for completing rotary wells and would considerably reduce the extra cost for installing percussive tools.

March 12th, 1935.

Exhibit D

NATURAL GAS IN ALBERTA

BY F. K. BEACH, OFFICE ENGINEER, PETROLEUM AND NATURAL GAS DIVISION

Man has used fire for ages and to the races who live in temperate climates with cold winters, the labour of collecting fuel has been a fairly large proportion of the whole business of living. If to the collection of fuel is added the carrying out of ashes and cleaning up of dirt occasioned by fires, quite enough of woman's time as well as man's is accounted for. The felling of trees, sawing them up, splitting, piling, letting them season, hauling in and bringing to the house as needed, is still the winter chore of man wherever trees are plentiful enough for that use. In other places coal takes the place of wood for fuel, reducing drudgery for the man of the house, but without reducing woman's work materially. Where natural or artificial gas is available, woman's work is materially lightened. Artificial gas is usually too expensive to use for house heating, but natural gas generally can compete with coal. If not actually reducing

the heating bill, it does not in most cases increase the cost of heating very much over the cost of heating by coal. As a consequence, natural gas finds a market, limited for the most part by the pipe lines available.

Electricity for lighting power, etc., is less expensive to carry long distances than is gas, for it can be carried on wires strung on poles while gas requires pipes, usually buried underground. As a consequence, not every house in a town can economically be supplied with gas even if there is gas in the town. The distribution is usually limited to the portions more thickly built up. Unlike electricity, however, the cost of connecting to a main transmission line is comparatively cheap, and small communities close to such main pipe lines can get this utility.

At the 1931 census Alberta had a population of 731,605. A total of 204 cities, towns and villages housed 38% of the total (279,252) and of these, 32 centres of 1,000 or over totalled 31½% (229,915). Natural gas is distributed in 26 centres having a population of 202,749. If a pipe line were built from Calgary to Edmonton, 12,311 persons would be added in some 15 centres. If such a line were now available, the supply for Edmonton, at present drawn from Viking, could be drawn instead from Turner Valley, thereby reducing the amount of waste from that field and holding the Viking field as a reserve. In the map, Fig. 1, attached to this report, existing pipelines, gas fields and centres supplied with gas are shown as well as the centres between Calgary and Edmonton and centres of 1,000 and over in other parts of the province.

The housewife finds natural gas a most flexible servant. On a hot summer day heat is available just when and where it is wanted for cooking, and immediately the meal is cooked, the heat can be discontinued, while with coal or wood, the whole stove gets hot when perhaps all that is required is to boil a kettle, and heat continues for some time after the immediate demand has been satisfied, to the discomfort of those who are in the kitchen. Fig. *2a* illustrates the variation in total demand in a gas system at different times in a summer day, and *2b* covers demand during a very cold winter day. *2a* starts at 8 a.m. of a midsummer Sunday. The morning peak comes between 10 and 11 when Sunday breakfast is being prepared. A small increase in load appears between 5 and 6 p.m. Some small demand continues throughout the night, keeping water hot in many houses, supplying bakeries that are making Monday's bread, keeping up steam in boilers of industrial plants, etc., and on Monday morning preparations for breakfast start around 6 o'clock. *2b* is a holiday in cold weather (Christmas) and at 8 in the morning the houses are being warmed up, the peak coming between 9 and 10. A small peak between 5 and 6 p.m. probably arises from a cooking load, small in comparison with the heating load. Toward midnight the gas is cut down somewhat as people go to bed, and again around 6 in the morning the load goes up as people rise. The morning is not quite so cold as the previous morning, and the demand at 8 a.m. is not quite so great as on the previous day. Both of these charts are of the Edmonton demand, and *a* and *b* are to the same scale.

Figure *3* shows over a year's record, the relation between temperature and gas demand for the Calgary-Lethbridge system. During the winter months every drop in temperature is reflected by an increase in load. Included in the daily input to the system is gas for storage at Bow Island, about 5,000 M.c.f.* per day. During the first two weeks of August this was cut off during the annual overhaul of equipment and test of the results of storage, and the line showing input to the system for this period represents normal demand. Storage was discontinued for two or three days in December when the weather was most severe. If we had shown hourly variations in demand, the line representing

input would have much more severe fluctuations and on Dec. 24 would have reached 61,270 M.c.f.* per day as the rate for the peak hour.

Included in the input shown is gas imported by the gas company for use in the Calgary oil refinery and amounting to about 2,500 M.c.f.* per day. If we deduct this from the summer months' graph, we note that the system must be large and strong enough to handle 60,000 M.c.f.* per day although the demand for any one day may fall as low as about 3,000 and may not run over 4,000 M.c.f.* per day from customers of the company for a month or more in midsummer.

Fig. *4* attempts to give a picture of relative amounts of gas used in various ways and places and the general trend of demand over the past 5 years. In it all daily and monthly peak demands are washed out. Two general types of demand are recognized. Demand connected with the oil and gas producing industry itself is plotted downward from a zero line to distinguish it from demand by consumers of the producing end of the industry. The fiscal year ending March 31 has been used owing to the fact that it does not cut into each winter's demand. In the Calgary-Lethbridge system, the demand appears to vary slightly with the intensity of cold weather in any winter. In the Edmonton system, competition from coal produced locally appears to have some effect on the total sales, as well as intensity of cold weather.

At Medicine Hat and Redcliff a number of industries have been closed during depression years. Here it is possible that estimations for the earlier years were slightly optimistic. More gas is now being metered than was the case in the earlier years shown in the figure.

It will be noted that 12,000,000 M.c.f.* per year is approximately the present requirement for all purposes except those connected with drilling and production of oil in Turner Valley and for storage against a time when gas will be required.

Gas Supplies for Alberta

Probably the largest supply of gas within the British Empire was contained in Turner Valley when Royalite 4 drilled into the limestone in October, 1924. Since then, approximately 700,000,000 M.c.f.* have been withdraw in order to recover naphtha occurring with the gas. If the fuel had been produced primarily for gas, the withdrawals to date would have met the present demand in the entire province, except fuel used for drilling, for some 58 years, even if all other sources had been closed in, or if used only for the Calgary-Lethbridge system it would have lasted 100 years. As things stand, it is difficult to say how long the Calgary-Lethbridge system will be oble to obtain a supply from Turner Valley. A part of the field has been closed in, and this action will make gas available for some time longer than would otherwise have been the case.

It is usual to draw conclusions respecting probable reserves in a field by observing pressure decline in connection with gas already withdrawn. Fig. *5* shows graphically the pressure decline in the principal fields that have been drawn on except for Turner Valley.

Note that Bow Island dropped from 745 when first drawn on in 1912 to 218 in 1920, and was then no longer able to supply Calgary. Repressuring started in 1930, using gas from Turner Valley injected through wells which had been used to withdraw the original supply, compressors being installed to increase the pressure. Gas to the extent of some 5,000 M.c.f.* per day has been injected, the total quantity to the end of 1934 amounting to about 7,350,000 M.c.f.,* or enough to carry normal demand in the Calgary-Lethbridge system for about one year.

Pressures at Medicine Hat and Redcliff appear to show an increase since 1930. This is in part due to several wells which proved an extension to the field at higher pressure than existed in the older portion. In part it is due to repairs to leaky wells, and possibly in part to previous erroneous pressures as a result of loading by water standing in the casing of some of the wells. This last feature is brought out in the graph for Viking. The drop from 1928 to 1929 appeared large. In 1930 pressures were observed before blowing to remove any head of water standing in the well, and again after blowing. The pressure after blowing shows that 1929 average was slightly erroneous. In some 11 years use about 10 years of ordinary Edmonton demand has been drawn from Viking field, and the closed pressure has dropped approximately 1/7 from its original amount. If 2/7 of the original pressure will remain when the field can no longer supply Edmonton, there remains 4/7 of the original supply, sufficient for say 40 years to come, if used only for Edmonton and population tributary to present pipe lines. The Kinsella field, about 10 miles east of Viking, is probably larger in content than was Viking at the start and other possible sources of supply are known in the country tributary to Edmonton.

Prospecting in the southern part of the province tributary to the Calgary-Bow Island pipeline has not yet yielded any noteworthy reserves. Foremost is a standby for the present system, but it is probably of only limited content. Therefore, as matters stand it appears possible that gas for the Calgary-Lethbridge system may have to come from the north when Turner Valley has been depleted.

February 28th, 1935.

*M.c.f.—Thousand cubic feet.

Fig. 1.

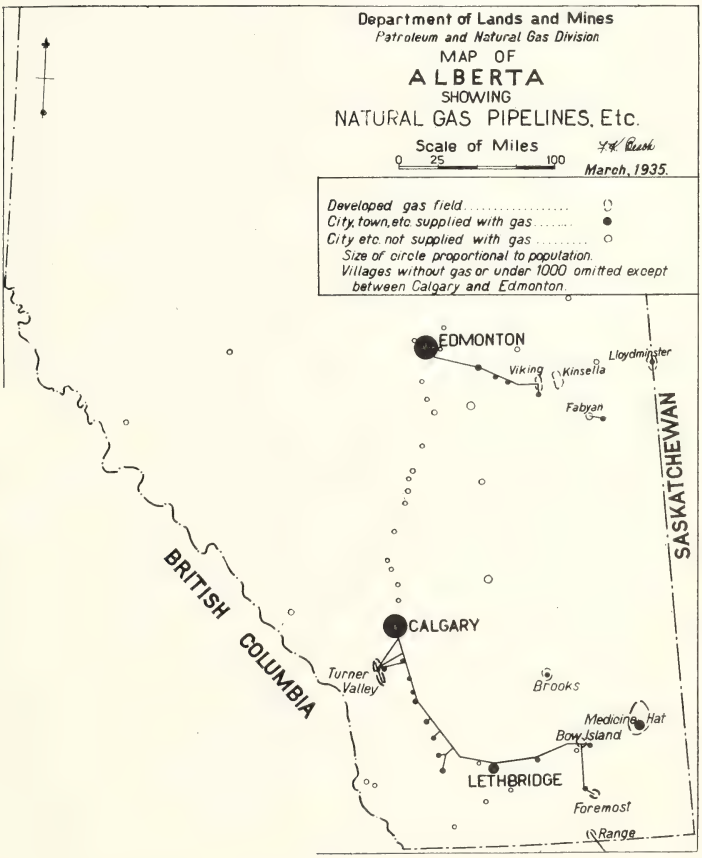

Department of Lands and Mines
Petroleum and Natural Gas Division
MAP OF
ALBERTA
SHOWING
NATURAL GAS PIPELINES, Etc.
Scale of Miles
0 25 100
March, 1935.
Developed gas field
City, town, etc. supplied with gas
City etc. not supplied with gas
Size of circle proportional to population.
Villages without gas or under 1000 omitted except between Calgary and Edmonton.
EDMONTON
Lloydminster
Viking
Kinsella
Fabyan
SASKATCHEWAN
BRITISH COLUMBIA
CALGARY
Turner Valley
Brooks
Medicine Hat
Bow Island
LETHBRIDGE
Foremost
Range

Fig. 2.

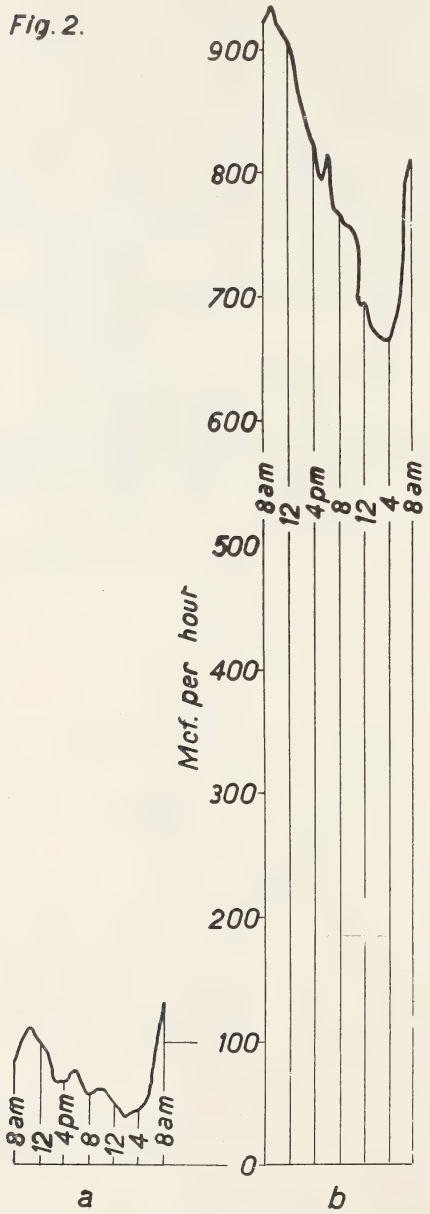
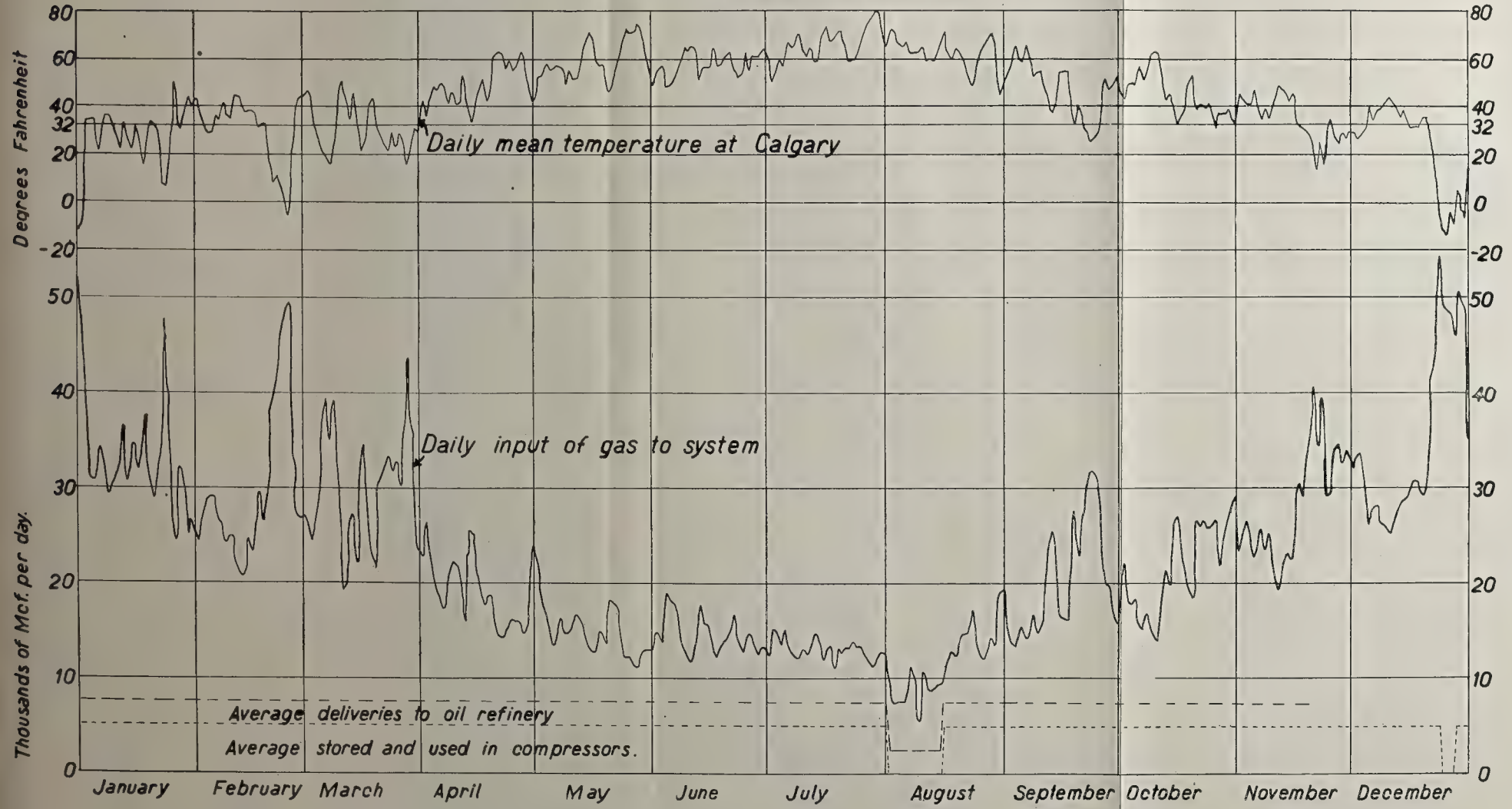

900
800
700
600
500
400
300
200
100
0
Mcf. per hour
8am
12
4pm
8
12
4
8am
a
b

Fig.3

GAS DEMAND IN CALGARY-LETHBRIDGE SYSTEM, 1934 AND ITS RELATION TO CALGARY TEMPERATURE.



GENERALIZED TREND OF GAS DEMAND IN ALBERTA

Fig 4

Years ended March 31st

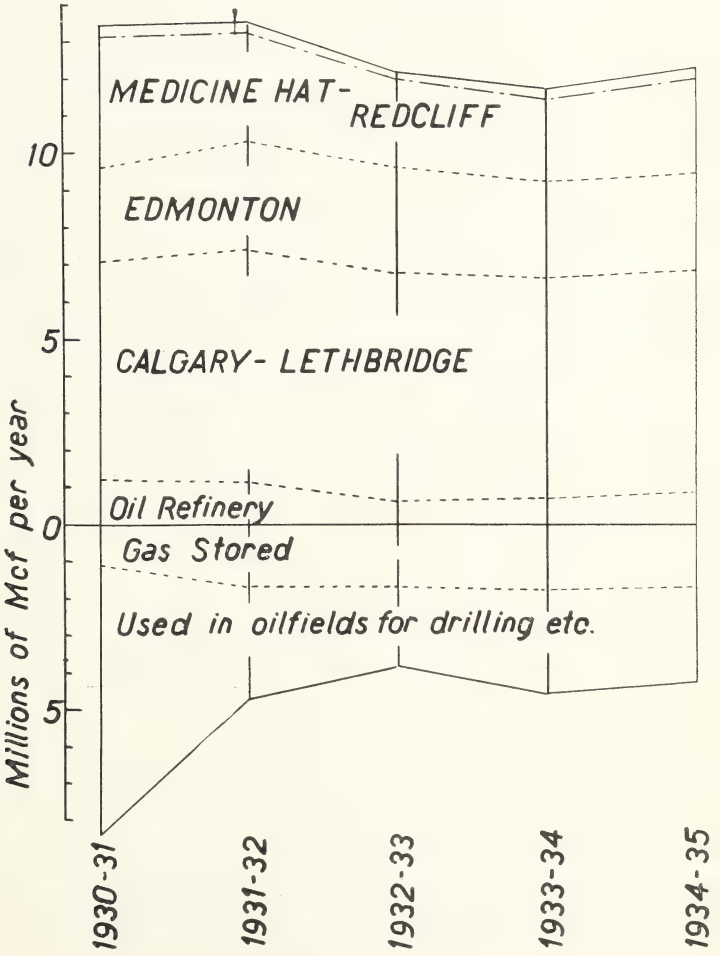


Fig. 5.

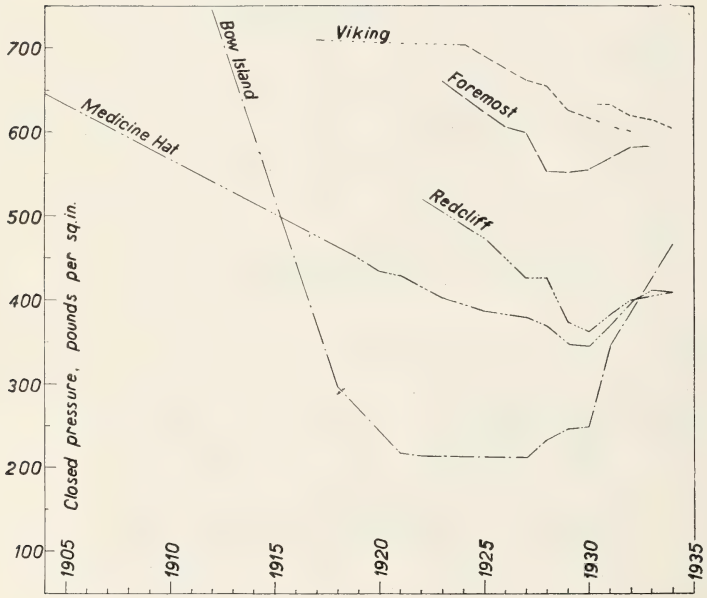

Viking
Bow Island
Foremost
Medicine Hat
Redcliff
Closed pressure, pounds per sq.in.
700
600
500
400
300
200
100
1905
1910
1915
1920
1925
1930
1935

Exhibit E

WAINWRIGHT OILFIELD

BY. R. M. S. OWEN, ASSISTANT ENGINEER, PETROLEUM AND NATURAL GAS DIVISION

Location.—The Wainwright oilfield is situated in townships 44 and 45, ranges 6 and 7, west of the 4th meridian in the eastern part of central Alberta at a distance of approximately 120 miles south-east of the City of Edmonton, on one of the main lines of the Canadian National Railways.

History.—Drilling started in the field during 1922. To date a total of 32 wells has been drilled of which 11 have produced oil, 7 are suspended and 6 were abandoned near the oil horizon while 8 did not drill sufficiently deep to test the oil zone.

The Wainwright oil field has been essentially developed by the rotary method, only 5 wells employing cable tools. Of the latter number three were not drilled sufficiently deep while the remaining two were both brought in as producers, a significant fact when comparing the efficacy of the two drilling methods.

Geography and Geology.—The country around Wainwright consists of gently rolling prairie cut through by the Battle River and its tributaries. The surface is nearly entirely covered by glacial deposits, hence structural determinations are largely based on the few exposures revealed in river channels, supplemented by a study of the bends in Battle River, some of which appear to be controlled by structural features in the underlying rocks. With the drilling of wells, sample evidence collected has largely helped to delineate the structure. According to Dr. G. S. Hume (1), two major folds cross this general area, namely the Fabyan and Battle River-Wainwright, trending in a general north-westerly to south-easterly direction. An underground structure contour map constructed on the base of the Benton formation shows that the strata have a general rise in a north-easterly direction from around 150 feet above sea level in the neighbourhood of the Wainwell wells to about 230 feet above sea level in the north-east part of the field or about 80 feet in about 5 miles. There is some evidence for the existence of terrace structures while the north-eastern part of the field appears to show slight doming and closures. Although subsurface evidence from many of the early wells is very meagre and of doubtful interpretation there is nothing to indicate a limitation to the extent of the field at present especially in an easterly and northerly direction.

The geological succession of formations is as follows:

Formation	Thickness, Feet	Description
Pale beds	500	Pale coloured sandstones and green shales: little ironstone and coal. Fresh water.
Variegated beds	200	Interlayed sands and shales with thin coal seams. Fresh water.
Birch Lake	60-100	Massive buff sandstone with some shales. Mainly brackish water deposits.
Grizzly Bear	40-100	Mainly dark blue grey marine shale: some sand beds present.
Ribstone Creek	225	Mainly sandstone with little shale, part carbonaceous. Brackish water deposits.
Lea Park-Benton	1,500-1,550	Marine dark grey shale. Some sandstone beds (gas bearing) particularly near base.
Lower cretaceous beds	270-310	Mainly sandstones (oil bearing) with some shale. Continental deposit.
Devonian beds	.....	Marine limestones and small amount of green shale.

LIST OF WELLS IN WAINWRIGHT FIELD

Well	Location*	Drilling Method	Date Commenced	Depth (Feet)	Depth to Top of Lower Cretaceous (Feet)	Status
Admiral, No. 1	16 of 36-44-7-W4	R	1929	2,698	2,055	Suspended
Atkins, No. 1	9 of 18-45-6-W4	R	1931	310	.....	Suspended
Beaument, No. 1	1 of 10-45-7-W4	R	1929	2,183	2,035	Producer
Bethwain, No. 1	13 of 6-45-6-W4	R	1929	2,485	2,063	Producer
Bethwain, No. 2	16 of 4-45-6-W4	R	1929	2,305	2,133	Suspended
British Petroleum, No. 1	1 of 36-45-7-W4	R	1922	2,017	1,975?	Abandoned
British Petroleum, No. 2	13 of 30-45-6-W4	R	1923	2,038	2,020?	Suspended (Gas Well)
British Petroleum, No. 3	4 of 29-45-6-W4	R	1924	2,296	2,098?	Abandoned
British Petroleum No. 3B	4 of 29-45-6-W4	R	1925	2,259	2,100?	Producer
British Petroleum No. 4	13 of 30-45-6-W4	R	1924	2,036	2,025?	Suspended
British Wainwright, No. 1	13 of 20-45-6-W4	R	1926	2,238	2,074?	Producer
Edalta, No. 1	15 of 19-45-6-W4	R	1929	2,225	2,084	Producer
Edmonton Wainwright, No. 1	4 of 29-45-6-W4	R	1926	2,274	2,100?	Producer
Emerald, No. 1	8 of 30-45-6-W4	R	1926	2,425	2,125?	Abandoned
Lloyds Petroleum, No. 1	12 of 6-45-6-W4	R	1930	323	.....	Abandoned
Mid-Canada, No. 1	7 of 13-45-6-W4	R	1927	175	.....	Suspended
Montreal Alberta, No. 1	2 of 15-45-7-W4	R	1931	2,885	2,060?	Suspended
National Exploration, No. 1	1 of 30-45-6-W4	R	1927	2,268	2,100?	Abandoned
Onalto, No. 1	8 of 20-45-6-W4	S	1929	2,232	2,058	Producer
Peninsular, No. 1	16 of 30-45-6-W4	S	1930	234	.....	Abandoned
Sasko-Wainwright, No. 1	1 of 19-45-6-W4	R	1928	2,250	2,116	Producer
Senator, No. 1	1 of 23-44-6-W4	R	1930	708	.....	Suspended
Wainwell, No. 1	9 of 36-44-7-W4	S	1924	2,225	2,068	Producer
Wainwell, No. 2	15 of 36-44-7-W4	S	1928	525	.....	Abandoned
Wainwell, No. 2A	15 of 36-44-7-W4	R	1928	2,033	2,029?	Suspended
Wainwell, No. 3	9 of 36-44-7-W4	R	1928	2,072	2,064	Suspended
Wainwell, No. 4	15 of 36-44-7-W4	R	1929	2,053	2,037	Producer
Wainwright Dome, No. 1	7 of 31-45-6-W4	R	1926	2,308	2,130?	Abandoned
Wainwright Oil Development, No. 1	15 of 36-44-7-W4	R	1922	218	.....	Abandoned
Wainwright Petroleum, No. 1	6 of 30-45-6-W4	R	1929	2,252	2,120?	Producer
Western Consolidated, No. 1	8 of 20-45-6-W4	S	1924	1,360	.....	Abandoned
Western Consolidated, No. 2	11 of 30-45-6-W4	R	1926	2,232	2,076?	Abandoned

N.B.—In the above table "R" indicates rotary drilled wells and "S" those drilled by standard cable tool method.

*Figures under this heading represent l.s.d (legal subdivision), section, township, range and meridian. The first description, Admiral, No. 1, would therefore read l.s.d. 16 of section 36, township 44, range 7, west of the 4th meridian.

PRODUCTION:

To the end of 1934 Wainwright had produced 69,662 barrels of oil and 11 wells, two of which have produced over periods of nine and six years respectively an amount equal to 62.9 per cent of the total oil production of the field.

PRODUCTION DATA

Well	1926	1927	1928	1929	1930	1931	1932	1933	1934	Total
British Petroleum, No. 3B	4,350	1,314	5,530	5,540	1,670	265	759	894	2,075	22,397
Edmonton Wainwright	1,631	1,212	1,405	1,326	2,281	1,499	407	119	1,522	11,402
Wainwell, No. 1			1,017	758	.....	.....	.....	.....	.....	1,775
Wainwell, No. 4				1,010	1,278	.....	.....	.....	.....	2,288
Sasko-Wainwright				3,548	3,996	3,912	3,485	3,018	3,438	21,397
British Wainwright				150	346	.....	.....	.....	343	839
Onalto					168	1,070	2,199	310	2,882	6,629
Edalta						296	.....	56	646	998
Bethwain, No. 2						100	85	362	.....	547
Beaument (Gold Standard), No. 1								517	793	1,310
Wainwright Petroleum, No. 1									80	80
TOTALS	5,981	2,526	7,952	12,332	9,739	7,142	6,935	5,276	11,779	69,662

It will be observed from this tabulation that two wells have produced consistently for a period of nine years, while the Sasko-Wainwright well has produced on an average ten barrels a day for six years. However it will be noticed that most wells have not been allowed to produce continuously. This erratic production has largely been due to seasonal demand and the former inadequate refinery facilities together with the general idea of operators that anything less than a gusher did not warrant careful development. Only four wells, British Petroleum, No. 3B, Edmonton Wainwright, No. 1, Sasko-Wainwright, No. 1 and Onalto, No. 1 have been given anything like an adequate production test and it is thought that should the remaining wells be efficiently operated they could be made to maintain a production of at least ten to fifteen barrels of oil per day over a large number of years. One well came in with an estimated production of 250 barrels a day but the flow of oil became shut off owing to mechanical difficulties and was never recovered again.

Character of the Oil.—The oil produced at Wainwright belongs to the heavy crude class and has a gravity range of from 20 to 22 degrees Baumé. It is of a brownish-black colour and of a hybrid base. At present the crude oil commands prices ranging from 90 cents to $1.00 per barrel. An average laboratory distillation shows 5 to 16% gasoline, about 4% kerosene, 15 to 30% gas oil and 16 to 29% lubricants with a residue varying from 32 to 47%. A refinery recently completed has a capacity of over 200 barrels per day, the finished products comprising gasoline, three grades of distillate and diesel oil. An average refinery run on Wainwright crude gives about 7.5% gasoline (over 45° Be.), 14% No. 2 distillate (36 to 38° Be.) and about 28% diesel oil (27 to 29° Be.). Thus at present about half the product consists of bottoms for which no market has yet been developed. Even neglecting this potentially profitable by-product which should yield a considerable quantity of lubricating oil and asphalt, the net refinery profit without selling costs should equal approximately 75 cents per barrel. The addition of a cracking unit to the refinery would considerably increase the recovery of the lighter fractions from Wainwright crude oil.

Geologcial Section.—Most wells begin near the base of the Pale or the top of the Variegated beds depending on elevation of well and position on structure. Water sands are encountered in the Birch Lake sandstone at a depth of around 220 feet and again in the Ribstone Creek formation the base of which in most wells occurs around the 600 feet level.

Prominent gas shows occur about 600 feet below the top of the Lea Park shales while at about 950 to 1,000 feet below the base of the Ribstone Creek occurs a speckled shale zone which is tentatively taken as the contact between the Lea Park and Benton (Alberta shale) formations. A prominent bentonite bed occurs just below this horizon and appears to be a valuable marker in this homogeneous shale series. Two prominent gas horizons occurr respectively about 250 and 150 feet above the base of the Benton formation of which the latter is usually the more important. These lower gas horizons appear to correlate roughly with the Viking gas sand horizon. The base of the Benton is generally marked by a chert pebble horizon.

Although a few oil shows are found in the Benton it is in the underlying Lower Cretaceous formation that commercial production of oil is encountered. This formation is non-marine in origin and consists predominantly of sandstones with subordinate greenish grey shales with a few coal seams. Immediately below the base of the Benton at an average depth of 2,030 to 2,130 feet below the surface occurs the Wainwells sand which is generally oil bearing particularly

in the area in which the various Wainwell wells are located. The strata below this consists predominantly of oil sands while at a depth of around 120 feet below the base of the Benton occurs a coal horizon generally called the "B.P. 3" coal which appears to be fairly persistent throughout the field and serves as a useful marker. This coal overlies the sand from which most of the production of the field is obtained. The thickness of the various oil sands encountered varies considerably due to the geological conditions under which they were deposited and most of the sands contain thin streaks of shale. Rapid lateral variation in grain size appears to be the general rule and the resulting porosity appears to be a controlling factor in the well's productivity. Operators have contended that low down in the Lower Cretaceous water is present in some of the sands. This opinion, however, is at present unconfirmed, but in order to safeguard new wells and obtain waterfree oil it is advisable that the Lower Cretaceous strata should not be too deeply penetrated. The rotary system of drilling, almost universally employed, in which the drilled hole is of necessity constantly full of drilling fluid, has made the exact location of this probable connate formation water a matter of doubtful speculation. Suffice it to state that the cable tool wells penetrating this section have been practically water free. The thickness of the Lower Cretaceous varies between about 270 and 310 feet and the most highly saturated sands appear to be in the upper half of this section.

There is evidence that there may be thin marine intercalations in the Lower Cretaceous in this area, possibly representatives of the marine Clearwater Shales to the north, and this intermixture of continental and near-shore deposits provides an environment considered to be favourable for the formation of oil over a large area in eastern central Alberta.

Only three wells in the area have penetrated the complete Lower Cretaceous section and entered the underlying Palaeozoic limestone. Oil staining has been encountered near the top of this formation but one well has drilled the limestone for a thickness of 550 feet without encountering production. Some porous zones were met, however, in the limestone and it is possible that these horizons may be oil bearing at other locations.

Drilling Methods.—The general procedure in the case of rotary wells is to set and cement 12½" casing at the top of the Lea-Park shales at an average depth of close to 700 feet thereby shutting off all surface waters. Thereafter it is usual to run 8¼" casing to the base of the Benton or to set it just above the oil sand to be tested. Cable tool wells usually set a large diameter casing near the surface, 15½" or 12½" at the top of the Lea-Park and 8¼" or 6¼" close to the oil sand. An intermediate string of probably 10" casing may be set and subsequently pulled. There appears to be no doubt that the rotary system provides a saving of time and casing whilst drilling to the base of the Benton formation but it appears equally true that subsequent drilling through the oil sand series should be conducted by cable tool methods in order to ensure precise knowledge as to the position and vertical extent of the various oil sands encountered and hence the ability to determine the exact depth of any possible connate water horizon. In regard to the last statement it may be mentioned that records of the earliest wells drilled in the field show that in many cases (before Government supervision was introduced) casings in wells were not cemented with the consequence that surface waters had ample opportunity to seep down into and penetrate the lower horizons. A large part of the trouble in wells producing both oil and water may have been due to this cause.

Future Development of the Field.—As may be seen from the map attached to this report only a small part of the field has been actually drilled and there is

ample room for many more wells, even within the developed area and close to the largest producers, all of which if drilled efficiently should produce commercial quantities of oil. Besides this, since the field has not been delimited in any direction good prospects exist for the bringing in of larger wells should some progressive operator prospect outwards from the present area of production.

In the past, as before stated, nearly all the wells have been drilled entirely by the rotary method. The necessity of having the hole full of water and the consequent pressure exerted by this column has resulted in many oil and gas horizons being passed by unnoticed.

Inadequate storage facilities have proved a great hindrance in the past resulting in crude oil being allowed to accumulate in earthen pits with consequent deterioration in the quality of the oil, losses through evaporation and contamination with rain water.

Future economical development of this field would appear to be in the direction of a scientific distribution of numerous wells around a central pumping plant, thereby cutting down on operating costs and ensuring a sufficient number of holes to enable the oil horizon to be adequately drained of its heavy oil content. Repressuring of the oil sands through key wells with the gas encountered higher up in the section would appear to be a possible means of obtaining greater production of lighter gravity oil than hitherto obtained.

In conclusion it is apparent that the future profitable exploration of the Wainwright oil field rests in the formation of a few large companies sufficiently financed to drill a series of wells under efficient engineering and geological supervision and the extension of refinery facilities so as to yield a greater percentage of marketable products.

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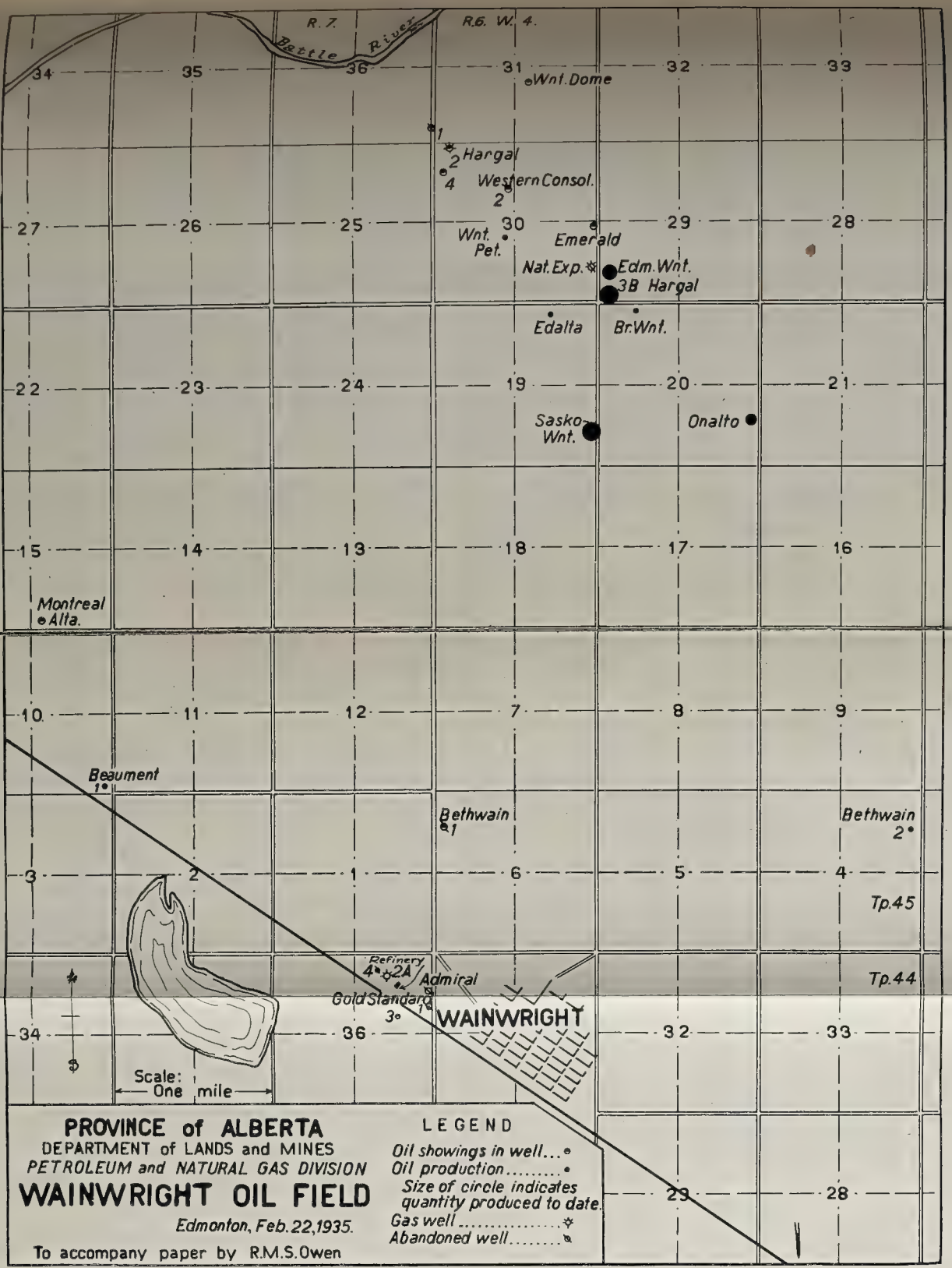
March 7th, 1935.


R.7.
Battle River
R.6. W. 4.
Wnt. Dome
Hargal
Western Consol.
Wnt. Pet.
Emerald
Nat. Exp.
Edm. Wnt.
3B Hargal
Edalta
Br. Wnt.
Sasko Wnt.
Onalto
Montreal Alta.
Beaumont
Bethwain
Bethwain
Tp. 45
Tp. 44
Refinery
Admiral
Gold Standard
WAINWRIGHT
Scale: One mile
PROVINCE of ALBERTA
DEPARTMENT of LANDS and MINES
PETROLEUM and NATURAL GAS DIVISION
WAINWRIGHT OIL FIELD
Edmonton, Feb. 22, 1935.
To accompany paper by R.M.S. Owen
LEGEND
Oil showings in well...
Oil production.....
Size of circle indicates quantity produced to date.
Gas well.....
Abandoned well.....

Forestry

REPORT OF THE DIRECTOR OF FORESTRY, T. F. BLEFGEN

The responsibilities of the Forest Service for the fiscal year, 1934-35, were similar to those reported in the previous period with forest protection and timber disposal representing the principal duties.

Sales of tie timber showed an upward trend in the market but other classes of timber were down from the previous year. It is obvious that a favourable change in this industry cannot noticeably take place until there is a general betterment in basic conditions. In matters of utilization and slash disposal, a general improvement was in evidence during the year.

Forest protection efforts were continued on the same basis as in immediately preceding years, results during this period being considered reasonably successful, excepting in the southern part of the Province where a combination of conditions and circumstances resulted in serious losses and the expenditure of large sums of money for fire control purposes. From the Red Deer valley north the season was a very favourable one for forest protection and had the Service been so fortunate as to have had similar conditions in the south the season would have been outstanding in point of low damage and reduction of fire fighting costs.

It must be repeated that the effort towards economy which has led to a curtailment of the period of employment for the field staff has led also to grave difficulties in the matter of maintenance of systems of communication, which in turn has resulted in a dangerous situation in respect to the functioning of these systems at the time of the spring fire danger period. Likewise a grave danger to the safety of the forests is apparent through the above situation and through the fact that the field staff is not employed sufficiently early in the spring. The organization remains on the same basis numerically as shown in the previous report and there has been no change of importance within the organization.

A review of the year's wood operations again shows an increase in the number of small operations and consequently a further increase in timber inspection work. By temporarily transferring inspectors from divisions where the work in hand was not so heavy and by utilizing ranger services extensively on minor inspection work the situation was dealt with satisfactorily. This result was only obtained by working exceptionally long hours. Any increase in inspection work can anly be met by additional assistance for certain inspectors, otherwise the work will not be dealt with as desired, which may lead to a noticeable decrease in efficiency and most probably an undermining of health in individuals.

The forest nursery at Oliver is being developed in a very satisfactory way. The maximum development obtainable under the existing provision of labor supply is being reached and if an enlargement of this operation is undertaken it will be necessary to provide for additional labor supply from a source other than the Oliver Mental Institute.

Forest Protection

The situation with regard to destructive agencies other than fire remains as reported last year. Wind continues to cause considerable damage in the mature stands of spruce. A considerable number of present day logging operations takes place in such timber so that in so far as mature accessible stands are concerned it is expected that utilization will effect a fairly extensive salvage of wind-thrown

timber and the removal of the majority of this class of product prior to destruction by wind and decay.

Fire Season.—Precipitation over most of the province was lighter than usual during the winter of 1933-34. An early spring with an insignificant rain-fall ushered in the spring danger period which varied in length from a few days in the southern mountain and foothill region to one of several weeks duration in the northern plains region. During the spring danger period there were 144 fires with April contributing 25, May 107 and June 12, making up sixty per cent of the total fires for the year. June rains terminated this danger period over all forested territory excepting the southern region where precipitation was sub-normal and certainly far from adequate for assisting extensively in forest protection.

In the central and northern portion of the province heavy precipitation fell during the latter part of June and well on into July eliminating fire danger almost completely in this region during this period. During the summer period, however, southern Alberta with almost complete absence of rain and with strong dry winds, hot weather and low humidity experienced a critical danger period and one which the most destructive and costly fires occurred. The situation was most dangerous in the Crowsnest Pass district and the Cypress Hills Forest Reserve. Over the latter area in particular the snowfall of the previous winter had been very light and thus the season commenced with soil moisture below normal to be followed by drouth conditions during the spring and summer. The Cypress Hills Forest Reserve is situated at altitudes of from approximately 4,000 feet at the base of the hills to over 4,700 feet at the summit which is in the form of a plateau. Surrounded by the lower plains it will be evident that the area is particularly open to the effect of winds.

Unsettled weather, accompanied by light rains and snow, was general over almost all forested territory in September but the moisture was not sufficient to end the fire season definitely. In the northern part of the province fire danger existed until a genreal snowstorm occurred in mid-October which had the effect of terminating the hazard for this region. Over the foothills and mountain country the danger was not completely eliminated until about the middle of December.

Timber stand on Athabasca River above La Biche River

Fire Prevention.—Seasonal rangers and assistants were employed slightly in advance of the commencement of the fire season—a highly desirable proceeding. The staff was thus enabled to make some preparation for the immediate future, particularly to encourage burning of slash, under permits, by settlers during the safe period, to check up trails for winter fires, to re-open trails and to repair telephone lines and equipment.

It can be said that the early prevention work was very successful over those areas which rangers were able to cover during the short time at their disposal. To secure the maximum results it is necessary that the ranger staff be employed just as early as it is possible to travel.

The honorary fire guardians again provided valuable assistance in issuing burning permits.

The restriction on open camp fires over a defined area in the south-western part of the province was again in force and gave satisfactory results. As reported last year still better results could be looked for if the date on which this restriction becomes effective, August 1st, were advanced by two weeks or one month.

Additional improved camp sites were established, these improvements being confined to the Bow River division. With the limited funds available it is natural that this development is slow. It is hoped that when the importance of improved camp sites, provided with safe fire places, is more thoroughly proven that funds will be made available to deal with the situation adequately. Six camp stoves were erected during the year.

Again the officials and employees of the railway companies within the province rendered valuable co-operation in matters of fire prevention and suppression. The maintenance of fire preventive appliances on railway locomotives and other rolling stock is a matter which directly concerns the officers of the Board of Railway Commissioners for Canada. A very satisfactory degree of co-operation and assistance was received from this source and the small number of railway fires points to good maintenance practice.

BURNING PERMITS ISSUED IN ALBERTA
PRAIRIE FIRES ACT
1934

Forest Reserves:			
Crowsnest-Bow River	.....		
Clearwater	428		
Cypress Hills	.....		
Brazeau-Athabasca	9		
Sub-total		437	
Northern Alberta Forest District:			
Edmonton	110		
Edson	226		
Athabasca	77		
Bonnyville	.....		
McMurray	21		
Slave Lake	513		
Grande Prairie	392		
Peace River	46		
Sub-total		1,386	
Forest Service Total			1,823
Honorary Fire Guardians outside Municipal Districts		878	
Municipal Districts		308	
Royal Canadian Mounted Police		238	
Outside Agencies Total			1,424
Grand Total			3,247

PROSECUTIONS AND CONVICTIONS
PRAIRIE FIRES ACT
1934

	Instituted by Forest Service	Instituted by other agencies	Totals
Number of prosecutions	20	15	35
Number of convictions	18	11	29

The control of camping and travelling within the forest reserves by the issue of free camping and travelling permits and the control of burning operations for clearing land or other purposes by the use of free burning permits within and adjacent to forested territory in the Northern Alberta Forest District are two of the most effective measures evolved for fire prevention purposes. In view of the fact that almost all fires are caused by the carelessness, thoughtlessness or ignorance of human beings it will be evident that personal contact between the field officers and the public is of great value.

Fire Detection.—The fire detection system remained as previously reported with no expansion of intensive detection such as exists in the Rocky Mountain Forest Reserve or the Slave Lake Division. The lookout system operated at a high degree of efficiency excepting in the area south of the Crowsnest Pass where due to drift smoke from British Columbia, Idaho, Washington and Montana visibility was greatly restricted, which proved a great handicap to lookout men, especially at the time that the Castle River fire occurred. This fire originated in British Columbia.

During the year a new lookout tower was completed south of Whitecourt and another almost completed between Edson and the Athabasca River. Both are located on the highest points in the districts and give exceptional coverage. Arrangements were made for the construction of another tower at the head of the Lobstick River south of Carrot Creek. The site was examined and steel tower material sent forward from Edmonton. This material is from an 80 foot tower taken from an area no longer under forest protection. The erection of these additional towers has in view the control of territory within the Edmonton and Edson divisions of the Northern Alberta Forest District. As used at present such towers are of considerable value to the district rangers. Present efficiency, compared with that which would be received if the towers were manned by lookout men and inter-communication from tower to tower and tower to rangers established, together with suitable fire finding equipment at each tower, would rate not higher than one per cent.

Fire Suppression.—During the season the Forest Service dealt with 240 fires, 134 being fires covering less than 10 acres and 106 larger than that area. Of the latter number 27 exceeded 500 acres and it is on this group that the large percentage of fire fighting funds were expended. The Willow Creek fire within the Cypress Hills Forest Reserve and the Castle River, Pelletier Creek No. 2, and Bluff Mountain fires within the Crowsnest Division account for the major expenditures of fire fighting funds during the season, showing a cost including ranger labour of $28,765.62. The total expenditure for all fires including ranger labour was $38,169.02.

The particular fires mentioned originated when the summer fire danger period was at its height and every natural factor against control. In each instance the fires made fast headway in the early stages, entirely too quickly to be coped with had equipment and men been rushed to the spot in numbers exceeding those actually used.

The Willow Creek fire originated near the summit of the Cypress Hills plateau and close to the head of Willow Creek. It spread so rapidly that the initial crew was altogether inadequate on arrival at the fire. Through the interference of some person unknown an unauthorized labour supply greatly in excess of requirements was requisitioned from Medicine Hat. This labour supply arriving as it did at various times of the day and night was without supervision for a short period, for those in charge were working day and night in an effort to control the fire and had no knowledge of the large excess of

men who were arriving and dispersing on to the fire line. Crew numbers were reduced as soon as the situation became apparent but in the meantime large commitments in labour service and supplies had been made. This briefly explains more than anything else the cost of this fire which must be admitted to be excessive. The importance of the Cypress Hills forest is so well recognized by the residents of the district that assistance was readily forthcoming. Unfortunately the enthusiasm of a very few contributed in no small way to disorganization in the early stages of the operation and to the excessive man power placed at the fire.

The major part of the timber killed by this fire will be disposed of by permit and thus a fairly complete salvage is anticipated. Trees that had not reached a usable size will be a complete loss and due to accessibility this material only will represent the major tree loss. The burned over area which was carrying a growth of lodgepole pine will reseed to this species naturally. Regardless of the needlessly heavy expense incurred in gaining control of this fire it should be understood that with the prevailing weather conditions it is fortunate that the destruction was not much more extensive. Had the fire broken to the north side of the hills it is conceivable that little would remain today of the green timber of the Cypress Hills. Fortunately spreading in this direction was checked.

The Castle River fire while occurring in the same period was an entirely different problem. The fire originated in British Columbia and it is reasonably well known to have started from the carelessness of campers who had left other fires behind in their travels. Originating as it did in British Columbia it was outside the jurisdiction of the Alberta Forest Service and unless it spread so as to be a menace to timber in Alberta suppression action by the Alberta Forest Service was not justified. There was no such action taken by the British Columbia Forest Branch, with the result that the fire spread unchecked and, reaching a favourable part of the main range of the Rocky Mountains, crossed into Alberta. Prior to this the fire had been under observation and it was decided, when it appeared that the fire threatened Alberta timber, that measures be taken to prevent its spread into this province. These measures were not successful and it became necessary to fight the fire in Alberta.

Conditions for detection and suppression were most difficult at this time. There were many large fires burning in British Columbia, Washington, Idaho and Montana and drift smoke from these rendered detection and close location from the lookouts very difficult. The fact that so many large fires were burning in nearby territory and that these spread despite the efforts of more highly organized and better equipped protection organizations only emphasizes the conditions that obtained at the time of the Castle River fire.

The history of this fire from the time actual fire fighting commenced was one of attack and defeat until finally when weather became somewhat favourable control was gained. In the meantime, a large area of inaccessible mature and over mature timber was fire-killed. While the pine stands will re-seed naturally it will be many years before the spruce stands become re-stablished and in the meantime an important watershed has been denuded of forest cover.

Suppression costs on this fire were large but are to a great extent justified in defence of valuable blocks of merchantable timber held in timber berths.

Fire suppression action on any large fire is usually open to criticism and this fire is no exception. From the time that actual fire fighting operations commenced, and this does not include the attempt to confine the fire to British Columbia, the action was reasonably satisfactory. It is only necessary to

envisage the region and problem, the strain and conditions under which men are forced to work, to understand that decisions may sometimes be faulty and that the seemingly impossible is often attempted. In reviewing the successes and the failures of other similar organizations which have had a greater opportunity to train personnel, have a much greater supply of up-to-date equipment, smaller areas to cover per man and all around better organization in the way of fire protection, communication, roads and trails, it is apparent that the field officers of the Alberta Forest Service in general need not suffer by comparison.

Causes.—A review of the causes of fire will indicate the sources of danger to Crown timber. Some fluctuation will be noted from season to season and under existing conditions of organization it can be said fairly definitely that such fluctuation is due to a change in conditions affecting any particular cause. For instance a wet season in newly settled areas will show a reduction in settlers' fires or again the early advent of winter will show a reduction in fires started by campers.

COMPARISON OF FIRE CAUSES BY PERCENTAGE

Causes	1931	1932	1933	1934
Campers	23.7	52.8	38.9	35.4
Smokers	3.2	5.3	13.5	11.7
Settlers	21.9	17.1	17.4	17.9
Railways	6.6	4.5	2.8	5.0
Lightning	.6	2.6	5.2	7.5
Industrial Operations	1.9	1.1	1.7	4.2
Incendiary	15.1	8.2	11.8	11.2
Public Works	1.4	.5	1.4	1.3
Unclassified	1.5	1.6	....	2.5
Unknown	24.1	6.3	7.3	3.3

RAILWAY FIRE LOSSES
CALENDAR YEAR 1934

Within the Province of Alberta on those forested areas under the supervision of the Alberta Forest Service. This summary includes only those fires which started within 300 feet of the centre line of the railway right of way.

	Northern Alberta Railways Company	Canadian National Railways	Canadian Pacific Railway	Totals
Causes and numbers of fires:				
Locomotives	2	3	1	6
Railway employees	1	5	....	6
Campers and travellers	4	....	1	5
Settlers	....	....	....	....
Unclassified	....	1	....	1
Unknown	2	1	....	3
TOTALS	9	10	2	21
Number of acres burned:				
Slashing or old burn	....	....	....	....
Timber land	2	.....	.....	2
Young growth	20	322	1	343
Not forested	232	456¼	180	868¾
TOTALS	254	778¾	181	1,213¾
Loss:				
Timber	$12.00	.....	.....	$ 12.00
Young growth	25.00	$1,606.00	$2.50	1,633.50
Forest products	.....	11.50	.....	11.50
Other property	.....	50.00	.....	50.00
TOTALS	$37.00	$1,667.50	$2.50	$1,707.00

ANNUAL STATEMENT OF FIRE BY CAUSES, MONTHLY DISTRIBUTION, ETC., WITHIN FOREST RESERVES, ALBERTA—CALENDAR YEAR, 1934

Cause	Number						Damage	Area	Monthly Distribution												Prosecutions	Convictions	Fires Inside Provincial Forests		Fires Outside Provincial Forests	
	A	B	C	D	Tot.	P.C.			Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.			No.	Area	No.	Area
								Acres																Acres		Acres
Camp-fires	13	1	....	1	15	31.9	$83,427.50	18,570	....	....	....	....	....	1	2	4	2	1	4	1	1	1	15	18,570	....	.....
Smokers	8	....	1	2	11	23.4	6,862.00	1,942¼	....	....	....	1	2	....	3	4	1	....	....	....	....	....	11	1,942¼	....	.....
Settlers	....	....	....	....	....	....	.....	.....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.....	....	.....
Railways	....	1	....	....	1	2.1	20.00	4	....	....	....	....	1	....	....	....	....	....	....	....	....	....	1	4	....	.....
Lightning	9	....	2	1	12	25.5	4,986.37	1,440¼	....	....	....	....	8	....	....	4	....	....	....	....	....	....	12	1,440¼	....	.....
Industrial Operations	1	4	....	....	5	10.7	.....	6½	....	1	2	....	1	....	....	....	....	1	....	....	....	....	5	6½	....	.....
Incendiary	....	....	....	....	....	....	.....	.....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.....	....	.....
Public Works	....	....	....	....	....	....	.....	.....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.....	....	.....
Unclassified	3	....	....	....	3	6.4	900.00	.....	....	....	....	....	....	....	1	1	....	1	....	....	....	....	3	.....	....	.....
Unknown	....	....	....	....	....	....	.....	.....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.....	....	.....
TOTALS	34	6	3	4	47	100	$96,195.87	21,963	....	1	2	1	12	1	6	13	3	3	4	1	1	1	47	21,963	....	.....
Per cent.	72.3	12.8	6.4	8.5	100			.....	....	2.1	4.2	2.1	25.5	2.1	12.8	27.7	6.4	6.4	8.5	2.1						

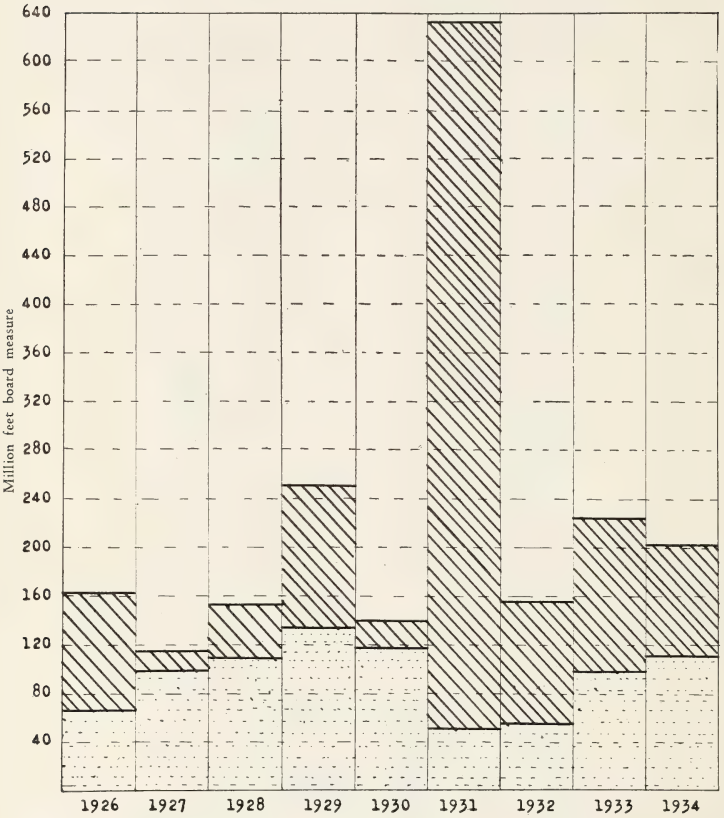
ANNUAL STATEMENT OF FIRES BY CAUSES, MONTHLY DISTRIBUTION, ETC., OUTSIDE FOREST RESERVES, ALBERTA—CALENDEAR YEAR, 1934

Cause	Number						Damage	Area	Monthly Distribution												Prosecutions	Convictions	Fires Inside Provincial Forests		Fires Outside Provincial Forests	
	A	B	C	D	Tot.	P.C.			Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.			No.	Area	No.	Area
								Acres																Acres		Acres
Camp-fires	43	4	18	5	70	36.3	$ 5,371.17	6,524	....	....	....	2	32	3	4	10	9	7	2	1	7	5	....	.....	70	6,254
Smokers	6	3	6	2	17	8.8	1,955.84	2,960	....	....	....	1	7	3	2	4	....	....	....	....	....	....	....	.....	17	2,960
Settlers	7	2	27	7	43	22.3	6,229.27	9,675	....	....	....	11	20	2	2	4	3	1	....	....	12	12	....	.....	43	9,675
Railways	4	2	4	1	11	5.7	1,556.00	1,096	....	....	....	2	5	1	....	1	....	2	....	....	....	....	....	.....	11	1,096
Lightning	4	1	1	....	6	3.1	34.50	14	....	....	....	....	....	1	5	....	....	....	....	....	....	....	....	.....	6	14
Industrial Operations	3	1	1	....	5	2.6	88.50	158	....	....	....	....	1	....	....	2	1	1	....	....	....	....	....	.....	5	158
Incendiary	4	4	12	7	27	14.0	13,642.74	14,585	....	....	....	5	21	1	....	....	....	....	....	....	....	....	....	.....	27	14,585
Public Works	1	1	1	....	3	1.5	16.50	15	....	....	....	....	2	....	....	1	....	....	....	....	....	....	....	.....	3	15
Unclassified	1	1	1	....	3	1.5	125.00	32	....	....	....	....	2	....	....	....	....	....	1	....	....	....	....	.....	3	32
Unknown	....	2	5	1	8	4.2	806.25	1,848	....	....	....	3	5	....	....	....	....	....	....	....	....	....	....	.....	8	1,848
TOTALS	73	21	76	23	193	100	$29,825.77	36,907	....	....	....	24	95	11	13	22	13	11	3	1	19	17	....	.....	193	36,907
Per cent.	37.8	10.9	39.4	11.9	100			.....	....	....	....	12.5	49.3	5.7	6.7	11.4	6.7	5.7	1.5	.5						

ANNUAL STATEMENT OF FIRES BY CAUSES, MONTHLY DISTRIBUTION, ETC., WITHIN AND OUTSIDE FOREST RESERVES, ALBERTA—CALENDAR YEAR 1934

Cause	Number						Damage	Area	Monthly Distribution												Prosecutions	Convictions	Fires Inside Provincial Forests		Fires Outside Provincial Forests	
	A	B	C	D	Tot.	P.C.			Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.			No.	Area	No.	Area
								Acres																Acres		Acres
Camp-fires	56	5	18	6	85	35.41	$ 88,798.67	25,094	....	....	....	2	32	4	6	14	11	8	6	2	8	6	15	18,570	70	6,524
Smokers	14	3	7	4	28	11.67	8,817.84	4,902¼	....	....	....	2	9	3	5	8	1	....	....	....	....	....	11	1,942¼	17	2,960
Settlers	7	2	27	7	43	17.92	6,229.27	9,675	....	....	....	11	20	2	2	4	3	1	....	....	12	12	....	.....	43	9,675
Railways	4	3	4	1	12	5.00	1,576.00	1,100	....	....	....	2	6	1	....	1	....	2	....	....	....	....	1	4	11	1,096
Lightning	13	1	3	1	18	7.50	5,020.87	1,454¼	....	....	....	....	8	1	5	4	....	....	....	....	....	....	12	1,440¼	6	14
Industrial Operations	4	5	1	....	10	4.17	88.50	164½	....	1	2	....	2	....	....	2	1	2	....	....	....	....	5	6½	5	158
Incendiary	4	4	12	7	27	11.25	13,642.74	14,585	....	....	....	5	21	1	....	....	....	....	....	....	....	....	....	.....	27	14,585
Public Works	1	1	1	....	3	1.25	16.50	15	....	....	....	....	2	....	....	1	....	....	....	....	....	....	....	.....	3	15
Unclassified	4	1	1	....	6	2.50	1,025.00	32	....	....	....	....	2	....	1	1	....	1	1	....	....	....	3	.....	3	32
Unknown	....	2	5	1	8	3.33	806.25	1,848	....	....	....	3	5	....	....	....	....	....	....	....	....	....	....	.....	8	1,848
TOTALS	107	27	79	27	240	100	$126,021.64	58,870	....	1	2	25	107	12	19	35	16	14	7	2	20	18	47	21,963	193	36,907
Per cent.	44.58	11.25	32.92	11.25	100			.....	....	.42	.83	10.42	44.58	5.00	7.92	14.58	6.67	5.83	2.92	.83	....	....	19.58	.....	80.42	.....

GRAPH OF TIMBER DEPLETION, PROVINCE OF ALBERTA
1926 TO 1934, INCLUSIVE



During this period the total depletion was 2,036,564,710 F.B.M.*, of which 58.68% was destroyed by fire and 41.32% utilized.

Legend

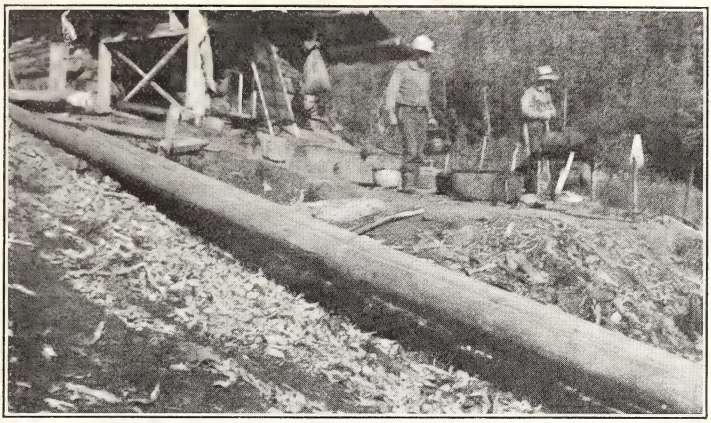
Timber destroyed by fire

Timber utilized

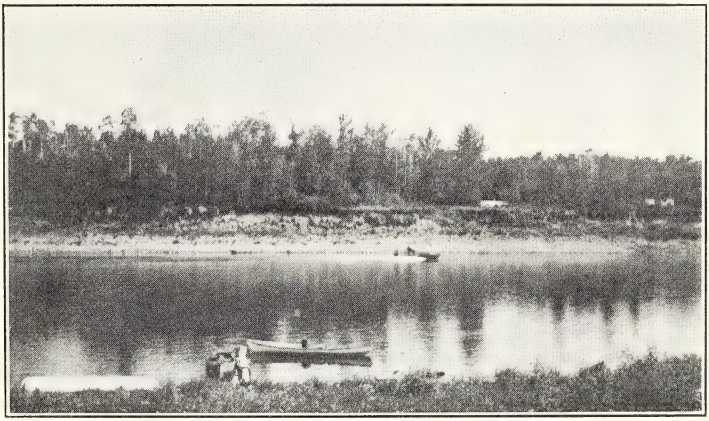
*F.B.M.—Feet board measure.

FIRE CAUSES	NUMBER OF FIRES A	B	C	D	Total	LANDS AFFECTED Ownership: Public, Acres	Private, Acres	AREA: Total, Acres	CONDITION: Merchantable Timber, Acres	Cut-over Timber, Acres	Young Growth, Acres	Not Forested, Acres	LOSS TIMBER (MERCHANTABLE AND CUT-OVER) SALVABLE: Saw-timber, M.ft.B.M.†	Other, Cords	Depreciation	UNSALVABLE: Saw-timber, M.ft.B.M.†	Other, Cords	Loss	Loss of Timber	Loss of Young Growth	Loss of Other Property	Total Loss	SUPPRESSION COSTS Ranger Service	Other Expenditure	Total	Burning Permits Issued
FIRES WITHIN FOREST RESERVES																										
Campers	13	1	....	1	15	18,570	....	18,570	14,080	....	3,850	640	10	200	$ 85.00	1,890	195,840	$75,330.00	$75,415.00	$ 8,012.50	....	$ 83,427.50	$ 718.30	$12,390.78	$13,109.08	....
Smokers	8	....	1	2	11	1,892¼	50	1,942¼	1,200¼	....	722	20	1,500	9,000	....	501	3,000	3,252.00	3,252.00	3,610.00	....	6,862.00	430.94	14,987.88	15,418.82	....
Railways	....	1	....	....	1	4	....	4	....	....	4	....	....	....	....	....	....	....	....	20.00	....	20.00	6.00	71.25	77.25	....
Lightning	9	....	2	1	12	1,440¼	....	1,440¼	1,280	....	160	¼	....	....	....	270	10,710	4,286.25	4,286.25	700.12	....	4,986.37	353.94	2,148.92	2,502.86	....
Industrial Operations	1	4	....	....	5	6½	....	6½	....	1¾	....	4¾	....	....	....	....	....	....	....	....	....	....	7.50	....	7.50	....
Unclassified	3	....	....	....	3	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	$ 900.00	900.00	....	3.00	3.00	....
TOTALS	34	6	3	4	47	21,913	50	21,963	16,560¼	1¾	4,736	665	1,510	9,200	$ 85.00	2,661	209,550	$82,868.25	$82,953.25	$12,342.62	$ 900.00	$ 96,195.87	$ 1,516.68	$29,601.83	$31,118.51	....
FIRES OUTSIDE FOREST RESERVES																										
Campers	43	4	18	5	70	6,106	478	6,524	719½	700	1,359	3,745½	285	440	$ 657.50	228½	6,145	$ 3,150.32	$ 3,807.82	$ 1,503.35	$ 60.00	$ 5,371.17	$ 670.02	$ 1,201.17	$ 1,871.19	....
Smokers	6	3	6	2	17	1,773	1,187	2,960	555	210	143¼	2,051¾	485	1,250	1,140.00	27	220	216.87	1,356.87	598.37	.60	1,955.84	222.64	1,620.23	1,842.87	....
Settlers	7	2	27	7	43	6,905	2,770	9,675	652¾	148¼	1,617	7,257	1,938	700	2,401.02	225	395	450.00	2,851.02	2,805.25	573.00	6,229.27	345.50	813.24	1,158.74	....
Railways	4	2	4	1	11	730½	365½	1,096	....	....	310	786	....	....	....	....	....	....	....	1,550.00	6.00	1,556.00	30.77	54.50	85.27	....
Lightning	4	1	1	....	6	14	....	14	4	....	....	10	....	....	....	....	46	34.50	34.50	....	....	34.50	45.27	8.25	53.52	....
Industrial Operations	3	1	1	....	5	150	8	158	....	100	8	50	....	....	....	....	....	....	....	36.00	52.50	88.50	28.08	6.75	34.83	....
Incendiary	4	4	12	7	27	14,126	459	14,585	678½	894	6,750	6,262½	595	320	855.00	50	7,443	4,087.74	4,942.74	8,700.00	....	13,642.74	180.50	1,447.30	1,627.80	....
Public Works	1	1	1	....	3	10	5	15	2	....	10	3	1½	....	2.50	....	....	....	2.50	14.00	....	16.50	....	....	....	....
Unclassified	1	1	1	....	3	30	2	32	....	....	....	32	....	....	....	....	....	....	....	....	125.00	125.00	3.67	3.75	7.42	....
Unknown	....	2	5	1	8	782	1,066	1,848	174	605¼	275	793¾	100	449	324.50	17	215	135.00	459.00	343.75	3.00	806.25	94.95	273.92	368.87	....
TOTALS	73	21	76	23	193	30,626½	6,280½	36,907	2,785¾	2,657½	10,472¼	20,991½	3,404½	3,159	$ 5,380.52	547½	14,464	$ 8,074.43	$13,454.95	$15,550.72	$ 820.10	$ 29,825.77	$ 1,621.40	$ 5,429.11	$ 7,050.51	....
FIRES WITHIN AND OUTSIDE FOREST RESERVES																										
Campers	56	5	18	6	85	24,676	418	25,094	14,799½	700	5,209	4,385½	295	640	$ 742.50	2,118½	201,985	$78,480.32	$79,222.82	$ 9,515.85	$ 60.00	$ 88,798.67	$ 1,388.32	$13,591.95	$14,980.27	....
Smokers	14	3	7	4	28	3,665¼	1,237	4,902¼	1,755¼	210	865¼	2,071¾	1,985	10,250	1,140.00	528	3,220	3,468.87	4,608.87	4,208.37	.60	8,817.84	653.58	16,608.11	17,261.69	....
Settlers	7	2	27	7	43	6,905	2,770	9,675	652¾	148¼	1,617	7,257	1,938	700	2,401.02	225	395	450.00	2,851.02	2,805.25	573.00	6,229.27	345.50	813.24	1,158.74	....
Railways	4	3	4	1	12	734½	365½	1,100	....	....	314	786	....	....	....	....	....	....	....	1,570.00	6.00	1,576.00	36.77	125.75	162.52	....
Lightning	13	1	3	1	18	1,454¼	....	1,454¼	1,284	....	160	10¼	....	....	....	270	10,756	4,320.75	4,320.75	700.12	....	5,020.87	399.21	2,157.17	2,556.38	....
Industrial Operations	4	5	1	....	10	156½	8	164½	....	101¾	8	54¾	....	....	....	....	....	....	....	36.00	52.50	88.50	35.58	6.75	42.33	....
Incendiary	4	4	12	7	27	14,126	459	14,585	678½	894	6,750	6,262½	595	320	855.00	50	7,443	4,087.74	4,942.74	8,700.00	....	13,642.74	180.50	1,447.30	1,627.80	....
Public Works	1	1	1	....	3	10	5	15	2	....	10	3	1½	....	2.50	....	....	....	2.50	14.00	....	16.50	....	....	....	....
Unclassified	4	1	1	....	6	30	2	32	....	....	....	32	....	....	....	....	....	....	....	....	1,025.00	1,025.00	3.67	6.75	10.42	....
Unknown	....	2	5	1	8	782	1,066	1,848	174	605¼	275	793¾	100	449	324.50	17	215	135.00	459.50	343.75	3.00	806.25	94.95	273.92	368.87	....
TOTALS	107	27	79	27	240	52,539½	6,330½	58,870	19,346	2,659¼	15,208¼	21,656½	4,914½	12,359	$ 5,465.52	3,208½	224,014	$90,942.68	$96,408.20	$27,893.34	$ 1,720.10	$126,021.64	$ 3,138.08	$35,030.94	$38,169.02	....
SUMMARY BY DIVISIONS																										
DIVISIONS																										
Cypress Hills	1	....	....	1	2	1,350	50	1,400	1,200	....	200	....	1,500	9,000	....	500	3,000	$ 3,250.00	$ 3,250.00	$ 1,000.00	....	$ 4,250.00	$ 203.63	$12,406.03	$12,609.66	....
Crowsnest	3	1	....	3	7	19,392	326	19,718	14,088	....	4,404	1,226	10	200	$ 85.00	1,914	195,840	75,378.00	75,463.00	10,817.50	....	86,280.50	808.10	15,376.51	16,184.61	....
Bow River	12	3	3	....	18	205	....	205	¾	....	175	29¼	....	....	....	2	....	2.87	2.87	775.12	....	777.99	239.26	1,543.06	1,782.32	....
Clearwater	16	2	7	3	28	4,052½	1,200	5,252½	1,455¼	350¼	620¼	2,826¾	120	....	240.00	272	10,930	4,454.25	4,694.25	1,708.00	$ 900.00	7,302.25	479.58	1,908.35	2,387.93	428
Brazeau	6	5	....	....	11	17½	....	17½	....	1¾	14	1¾	....	....	....	....	....	....	....	32.50	....	32.50	68.25	258.10	326.35	1
Athabasca	3	....	....	....	3	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	5.56	....	5.56	8
*N.A.F.D.	66	16	69	20	171	27,552½	4,754½	32,277	2,602	2,307¼	9,795	17,572¾	3,284½	3,159	5,140.52	520½	14,244	7,857.56	12,998.08	13,560.22	820.10	27,378.40	1,333.70	3,538.89	4,872.59	1,385
TOTALS	107	27	79	27	240	52,539½	6,330½	58,870	19,346	2,659¼	15,208¼	21,656½	4,914½	12,359	$ 5,465.52	3,208½	224,014	$90,942.68	$96,408.20	$27,893.34	$ 1,720.10	$126,021.64	$ 3,138.08	$35,030.94	$38,169.02	1.822

†M.ft. B.M.—Thousand feet, board measure.
*N.A.F.D.—Northern Alberta Forest District.



Trappers' cabin at mouth of Little Buffalo River on the Athabasca. Natural gas seepages furnish light and heat sed in cabin



The Snye at Fort McMurray in front of Forestry headquarters

Personnel.—Field staff strength remains at the same figure as previously reported. This matter has been referred to in previous reports and it has been indicated that the situation in this respect is not satisfactory. Staff numbers and periods of employment do not meet the requirements of forest administration and forest protection. The great reduction made in the permanent staff together with the short period of employment of seasonal members has resulted in a difficult situation in respect to the maintenance of roads, trails and telephone lines and the repair of equipment prior to the opening of the fire season. In addition it is not possible to deal properly with the hazard arising from spring burning and winter ground fires unless the seasonal staff be employed considerably before the commencement of the fire season.

The settlement of marginal lands, sub-marginal lands and lands within timber areas and totally unsuited for agriculture has provided a grave menace to mature timber and to the young growth upon which the timber industry of

the province will depend in the future for raw material. This particular feature places an additional burden on the field staff and one with which under present strength it cannot cope in a season of hazardous weather.

The importance of forest cover is so evident that there is scarcely any necessity of referring to it here. It is also realized that during recent years it has been necessary to operate or provide services with the strictest economy, but it is only necessary to point out that mature timber destroyed by fire cannot be replaced in a normal lifetime and that the destruction of young growth is often followed by a generation of weed trees or in many cases by complete barren. Economy may easily defeat its own ends.

Fire Fighting Equipment.—During recent years it has been impossible to keep the supply of special fire fighting equipment at a safe level. At the outset the Forest Service was handicapped by a serious shortage of equipment throughout the forested territory of northern and central Alberta. It has not been possible to correct this situation nor has it been possible to provide for the replacement of equipment now in use but obsolete.

Co-operation.—The extent of voluntary co-operation from many sources indicates the interest of the general public in matters of fire prevention and forest protection. Most of this help originates from persons who can expect no return for their assistance other than the good of the province.

Pre-arranged co-operation on the basis of mutual benefits is in many respects on a satisfactory footing, but it is apparent that a more definite understanding is necessary in some directions. In particular this is necessary with the Province of British Columbia, an instance being the Castle River fire which originated in that province and spread unchecked into Alberta.

In general the co-operation received, whether voluntary or pre-arranged, is appreciated and the valuable assistance given in the vital matter of forest protection is hereby acknowledged.

Forest Administration

Provincial Forest Reserves.—The disposal of timber by timber sale and timber permit continued on the same basis as in preceding years, and a slight drop in both sale and permit revenue is noted. There was particularly a decrease in timber permit business in the Crowsnest-Bow River forest and an increase in the Cypress Hills Forest Reserve. In the latter instance there has been a good demand for timber which was fire-killed in the Willow Creek fire of last year and it appears that this material will be largely salvaged.

During the period under review there were 19 active and 7 inactive timber sales on forest reserves. Four sales on which operations had been completed were closed out. Five new sales were awarded from which it is estimated that the following timber may be utilized:

3,680,000 F.B.M.* of green saw-timber,
270,000 F.B.M.* of dry saw-timber,
10,000 railway ties,
50,000 lineal feet of green mine props.

TIMBER CUT ON TIMBER SALES
ALBERTA FOREST RESERVES
April 1st, 1934 to March 31st, 1935

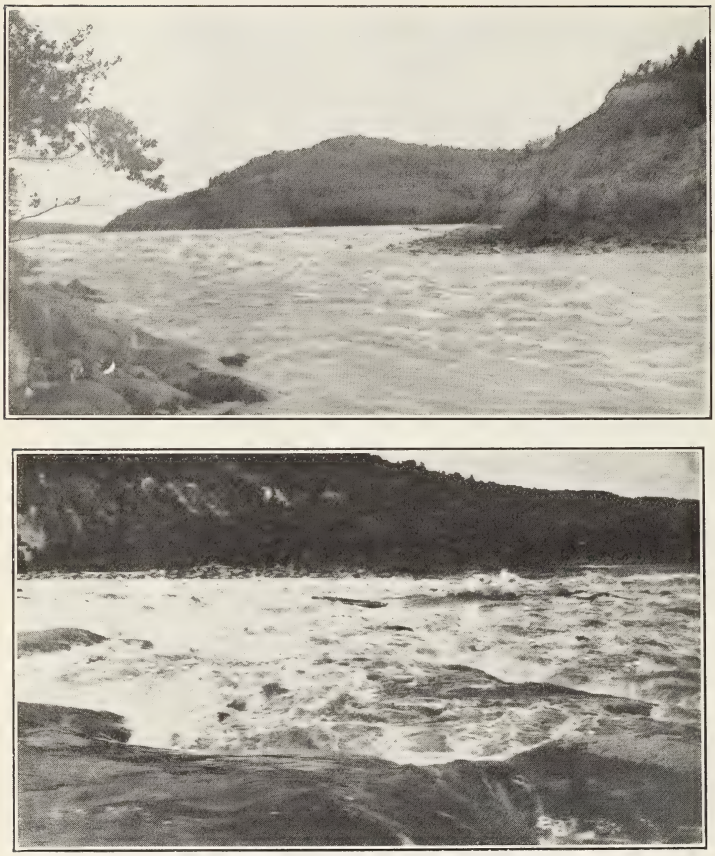
	Crowsnest	Bow River	Clearwater	Brazeau	Totals
Lumber (F.B.M.*)	1,212,884	1,074,981	.....	937,582	3,225,447
Railway ties	653	.....	.....	50,737	51,390
Mine ties (lineal feet)	22 240	.....	.....	2,584	24,824
Mine props (lineal feet)	1,032,272	.....	566,316	292,904	1,891,492
Mine timber (lineal feet)	.....	.....	18,048	.....	18,048
Lagging (lineal feet)	132,126	.....	61,312	.....	193,438
Slab (cords)	.....	.....	.....	114	114
Value	$4,902.60	$2,459.20	$2,675.51	$7,024.63	$17,061.94

*F.B.M.—Feet, board measure.

TIMBER CUT UNDER PERMIT, ALBERTA FOREST RESERVES, FISCAL YEAR, 1934-35

Forest	No. of Permits	Dry Fuel Wood (cords)	Green Fuel Wood (cords)	Mine Timber Dry *lin. ft.	Mine Timber Dry *lin. ft.	Fence Posts	Sawlogs †F.B.M.	Round Timber ‡pcs.	Round Timber *lin. ft.	Lagging *lin. ft.	Telephone Poles	Christmas Trees
Cooking Lake	9	.....	.....	.....	.....	3,600	.....	25	200	.....	.....	.....
Cypress Hills	430	388	.....	.....	.....	25,934	2,000	35,614	1,200	.....	.....	.....
Crowsnest-Bow River	492	4,376	192	986,752	3,402	6,267	990,149	24,501	39,975	315,090	.....	50
Clearwater	22	40	.....	10,000	2,000	1,125	.....	1,198	900	.....	.....	.....
Brazeau-Athabasca	40	297	.....	12,068	.....	.....	.....	429	7,274	.....	5	.....
TOTALS	993	5,101	192	1,008,820	5,402	36,926	992,149	61,767	49,549	315,090	5	50

*Lin. Ft.—Lineal Feet.
†F.B.M.—Feet, board measure.
‡Pcs.—Pieces.



Two views of the Grand Rapids on the Athabasca

Grazing

Reviewing the grazing use it will be noted that there was an increase in cattle of 2,327 head and a decrease in horses and sheep of 644 and 3,627 respectively. During the year a complete utilization of cattle and horse range was effected in the Cypress Hills Forest Reserve and in the Rocky Mountain Forest Reserve as far north as the Elbow River, a condition which has been unusual in a number of years. It is well known that many stockmen have, due to market conditions, withheld stock which normally would be sold and that as a consequence the herds are above normal numbers. This fact together with the shortage of range forage due to continuous drought is reflected in the cattle total for the year and the full utilization of cattle and horse range as previously noted. Drought on the southern ranges is causing grave concern. The foothill and mountain ranges within the forest reserves show for almost the first time the continued effects of sub-normal precipitation and a close utilization with the result that a reduction in carrying capacity is necessary on a number of grazing

divisions. Should these conditions continue the stockmen, through force of circumstances, will have to reduce their herds. It will be regrettable if such curtailment becomes necessary for the stockmen might suffer a great financial loss, but there appears to be a strong probability that saleable cattle may be marketed at a profit due to general unsatisfactory conditions obtaining in the stock industry in the United States. If this probability becomes an established fact the herds of southern Alberta will be reduced for the most part in a normal way.

Stock was removed from forest range at the end of the summer grazing season in reasonably good condition. In a few instances new stock found the foothill and mountain range strange and did not show the improvement desired. This feature is usual with cattle from the plains, and the fact that it occurred last season should not be used as a yard-stick to measure general grazing results.

Every effort is being made to maintain the forest range in good condition and with this aim in view it follows that drought and close utilization will force a reduction in authorized carrying capacity which in turn will make necessary a reduction of grazing privileges to the individual permittee. It will be realized, however, that such steps are in the interest of all concerned and will be taken only when the necessity is evident.

During the year there was a further increase in the use of range in the Clearwater River valley. The farmers and ranchers in the vicinity of the Clearwater forest have secured very satisfactory results in grazing livestock within that reserve, and with the help of the Forest Superintendent have organized for community grazing. It would appear that an increase in the use of this range may be looked for.

The grazing trespass situation in the Clearwater forest received attention and reasonably satisfactory results were obtained in a round up of trespassing horses. The situation cannot be dealt with finally and definitely until the question of occupation of forest reserve lands by Stony Indians is settled.

GRAZING STATEMENT—ALBERTA FOREST SERVICE, 1934

Forest	No. of Permits	No. of Horses	No. of Cattle	No. of Sheep
Cypress Hills	65	228	2,823	.....
Crowsnest	194	1,060	11,546	2,778
Bow River	72	522	7,913	300
Clearwater	75	224	194	.....
Brazeau	103	272	81	.....
Athabasca	8	235	.....	.....
TOTALS	5517	2,541	22,557	3,078

COMPARATIVE STATEMENT, GRAZING—ALBERTA FOREST SERVICE

Grazing year	1931	1932	1933	1934	Totals	Average
Number of Permits	456	606	493	517	2,072	518
Number of cattle	15,041	20,086	20,230	22,557	77,914	19,478
Number of horses	3,417	3,377	3,185	2,541	12,520	3,130
Number of sheep	4,379	7,465	6,705	3,078	21,627	5,407

Improvements

The maintenance of the various classes of improvements which have been constructed with a view to aiding in matters of protection and administration has been dealt with only by the regular field staff. The year was a favourable one for such work excepting in the southern part of the province where due to the long and acutely dangerous fire period it became necessary for the field staff in this region to concentrate on fire prevention and suppression.

Under prevailing conditions of employment of the field staff the telephone lines, trails and roads are not maintained for a period of at least five months in

each year, and of course there can be no preparation for spring and summer manitenance work. As a consequence the work is much heavier due to the accumulation of damage. Such a situation does not favour forest protection. Very little new construction work was undertaken and only important projects were commenced. An instance is the gap in the telephone system between the Crowsnest and Bow River divisions. It is expected that that connection will be made early in the summer of 1935. A similar situation exists in respect to the Brazeau and Athabasca divisions, and it is very important from the view-point of protection and administration that steps be taken to remedy this at an early date. At the present time the Brazeau division does not secure full benefit of the lookout station north of Entrance and direct action on matters of protection, supervision and administration by the supervisor from forest headquarters is not now possible. In the southern portion of the Rocky Mountain Forest Reserve the improvement of public camp grounds was continued and six camp stoves were erected. It is hoped to make further progress on this important work to the end that camping may be enjoyed by the public with a maximum of safety to the forest.

Relief camps as in former years were employed within the Rocky Mountain Forest Reserve. Construction work was continued on the road up the Saskatchewan valley west of Nordegg, and the progress has been quite satisfactory considering the circumstances under which the work is carried on.

In the Crowsnest-Bow River forest a bridge was completed across Racehorse Creek, a tributary to the Old Man River. The road through the Gap in the Old Man Valley was relocated in some dangerous sections, a new grade established and the old sections of the road improved.

The operation of these camps is the responsibility of the Relief Commission so that the Forest Service is concerned only in locating the work to be done and in matters of general co-operation with the Commission.

STATEMENT OF REVENUE—FOREST RESERVES, 1934-35

Surface rentals	$ 2,376.19
Miscellaneous use permits	896.83
Timber permits	9,935.68
Timber sales guarantee deposits	1,770.00
Timber sale dues	13,890.82
Grazing permits	14,838.72
Hay permits	279.80
Fishing permits	1,066.50
Sundry revenue	952.60
Miscellaneous (services and supplies)	490.54
TOTAL	$46,497.68

IMPROVEMENT STATEMENT

NEW CONSTRUCTION PROJECTS:

Forest	Houses	Cabins	Stables	Sheds, Garages, etc.	Trails (Miles)	Fields (Acres)	Fences	Bridges	Corrals	Telephone Lines (Miles)	Water Supplies	Signs	Camp Grounds
Cypress Hills	....	....	....	....	....	....	....	....	....	....	1	....	....
Crowsnest	....	....	3	1	3	....	....	....	....	12	....	....	....
Bow River	1	1	....	3	25	....	2	....	1	....	....	....	6
Clearwater	1	....	....	....	....	....	....	....	....	....	....	....	....
Brazeau	....	....	....	....	10	....	3	....	....	....	1	....	....
Athabasca	....	....	....	2	9	13	2	1	1	....	....	1	....
TOTALS	2	1	3	6	47	13	7	1	2	12	2	1	6

MAINTENANCE PROJECTS:

Forest	Houses	Cabins	Stables	Sheds, Garages, etc.	Trails (Miles)	Roads (Miles)	Telephone Lines (Miles)	Fences	Hay Meadows and Fields	Bridges
Cypress Hills	1	....	....	3	....	....	12	2	....	....
Crowsnest	8	6	5	12	349½	126½	152½	21	1	2
Bow River	4	9	5	2	710	70½	250½	23	3	....
Clearwater	3	6	2	6	808	2	175	5	....	....
Brazeau	6	8	2	3	306	....	117	9	....	1
Athabasca	1	13	1	1	422½	36	64	7	....	....
TOTALS	23	42	15	27	2,596	235	771	67	4	3

MAINTENANCE PROJECTS—*Continued*:

IMPROVEMENT STATEMENT

Forest	Corrals	Grounds	Water Supply	Signs	Lookout Towers	Fire-guard Roads (Miles)	Ferries	Root Cellars	Gateways	Camp Grounds
Cypress Hills	....	1	....	1	....	30	....	....	....	....
Crowsnest	2	6	1	4	....	....	....	1	....	1
Bow River	6	9	5	4	....	....	....	....	2	....
Clearwater	2	....	1	....	....	....	1	....	....	....
Brazeau	1	5	1	....	1	....	....	....	....	....
Athabasca	3	1	1	....	....	....	....	....	....	....
TOTALS	14	22	9	9	1	30	1	1	2	1

NEW CONSTRUCTION PROJECTS:

IMPROVEMENTS—STATEMENT OF MAN-DAYS W ORKED

Forest	Houses	Cabins	Stables	Sheds, Garages, etc.	Trails	Fields	Fences	Bridges	Corrals	Telephone Lines	Water Supplies	Signs	Camp Grounds
Cypress Hills	....	....	....	....	....	....	....	....	....	....	8	....	....
Crowsnest	....	....	17½	26½	2	....	....	....	....	53	....	....	....
Bow River	6	12½	....	55	35	....	1	....	2	....	....	....	43½
Clearwater	4	....	....	....	....	....	....	....	....	....	....	....	....
Brazeau	....	....	....	....	1	....	36½	....	....	....	76½	1	....
Athabasca	....	....	....	29	2	159½	19	1	13	....	....	....	....
TOTALS	10	12½	17½	110½	40	159½	56½	1	15	53	84½	1	43½

IMPROVEMENTS—STATEMENT OF MAN-DAYS WORKED

MAINTENANCE PROJECTS:

Forest	Houses	Cabins	Stables	Sheds, Garages, Etc.	Trails	Roads	Telephone Lines	Fences	Hay Meadows and Fields	Bridges
Cypress Hills	1	....	....	15½	....	....	13½	3	....	....
Crowsnest	50	16	10½	22½	205½	123½	167½	86½	2	4
Bow River	8	22	6½	6½	384	176½	414	135	16	....
Clearwater	44	18	....	1	498	28	109	82	....	....
Brazeau	27	27½	1½	16½	221	....	108	74	....	2½
Athabasca	2½	49½	1	....	157½	66	55	47	....	....
TOTALS	132½	133	19½	62	1,466	394	867	427½	18	6½

Forest	Corrals	Grounds	Water Supplies	Signs	Lookout Towers	Fire-guard Roads	Ferries	Root Cellars	Gateways	Camp Grounds
Cypress Hills	....	11	....	½	....	5	....	....	....	....
Crowsnest	6	31½	½	35½	....	....	....	½	....	13½
Bow River	28½	27½	12½	3½	....	....	....	....	4	....
Clearwater	8	....	1	....	....	....	8	....	....	....
Brazeau	6	39½	½	....	4½	....	....	....	....	....
Athabasca	5½	7½	2	....	....	....	....	....	....	....
TOTALS	54	117	16½	39½	4½	5	8	½	4	13½

Administration of Forest Disposal

The administration of the timber resources on all provincial Crown lands not included in the forest reserves was continued in the same manner as in preceding years.

For the first time in several years an appreciable general increase was noted both in the number of operations and in the total production of the majority of timber products. This increase, though not great, is regarded as a good omen, particularly in view of the fact that no general improvement is yet noticeable in the building and timber-using industries.

Although the total increase of production over the previous year is a moderate one, the increase in gross timber revenue is quite substantial. This is principally due to the fact that the very large increase in production of railway ties in the preceding year was well maintained and also to the fact that much of the revenue on account of the previous year's increased tie operations was received by the Department during the current year. Gross receipts of timber revenues from all sources during the fiscal year 1934-35 show an increase of approximately 46% over the preceding year, in spite of the fact that certain reductions were made in the rates of dues payable.

Some of the manufacturers having stocks of dry well milled spruce on hand found a considerable outlet for this material in Ontario and in the middle Western States. It would appear that market conditions were slightly improved both in regard to demand and prices.

The timber regulations were amended in May, 1934, effecting certain reductions of dues payable on timber cut under permit on timber permit berths, these reductions in most cases applying to poplar. In December 1934, certain orders in council reduced the dues payable on sawn lumber manufactured from timber cut between October 1st, 1934 and September, 1935 from timber berths in the province. These reductions were made in recognition of the unfavourable economic conditions facing the operators of sawmills, and also with the object of encouraging the industry to employ a number of workers who would otherwise be on relief. The reductions authorized were 25c per thousand feet, board measure, on sawn lumber from licensed timber berths, 50c per thousand feet, board measure, on sawn lumber from permit berths, and a 10% reduction of dues payable on sawn lumber from damaged timber berths, in each case applicable only to dues on material manufactured from timber cut between dates specified.

The amendment to the timber regulations made effective in December, 1933 authorizing the issue of special permits to cut timber from isolated tracts not exceeding 160 acres in area and containing not more than 125,000 feet, board measure, proved of great value to the smaller operators by enabling them to utilize these small blocks of timber without the expense of purchasing a timber berth. The popularity of this class of special timber permit was evidenced by the fact no less than 252 such permits were issued during the year 1934-35, in addition to 61 granted from December, 1933 to March 31st 1934.

The agreement by which permits to cut railroad ties were issued to the Supervisor of Charity and Relief on behalf of individuals who would otherwise be on relief was continued and has worked out satisfactorily. The permit fee is prepaid by the Relief Branch, and dues are collected from the railroad company upon acceptance of the ties.

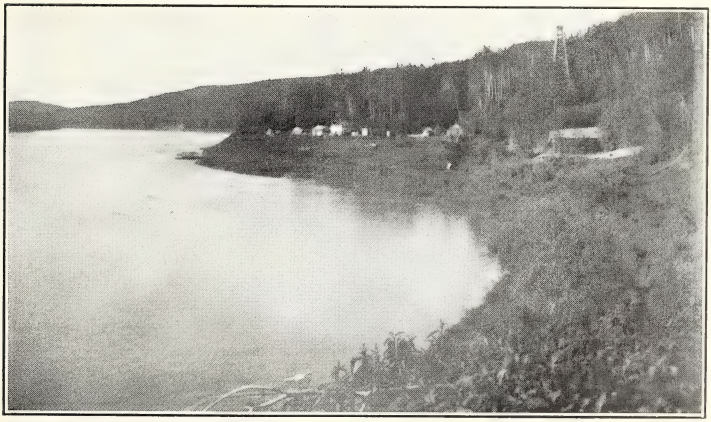
The disposal of slash by lopping and scattering is being strictly enforced, and recent operations will not result in the extreme fire traps that were all too prevalent in older operations.

There is a noticeable tendency towards closer utilization in manufacture on the part of some of the larger operators. Utilization in logging practice is

satisfactory in respect to timber felled and possibly too close in respect to the lower diameter classes where the land on which the operation occurs is absolute forest land.

The inspection ond supervision work required of the timber inspectors was heavier even than in the preceding year. A very considerable amount of inspection work originates through complaints presented and through the illegal taking of timber which necessitates investigation. Existing conditions have a bearing on this phase of inspection work. No less than 2,284 inspection reports were submitted during the year under review, an increase of 16% over 1933-34 and this with no increase in personnel, and with the arrangement still in force under which timber inspectors act as sub-agents of provincial lands on certain days each month at one or more points in their districts. As previously stated these sub-agency duties together with the increased demands for timber inspectors and supervision, impose a burden which in some districts is already reducing the present high efficiency of the inspection work.

Camp of Chisholm Lumber Company on Athabasca River below Fort Assiniboine



Trading post at Lower Pelican on Athabasca River.
Natural gas from well supplies light, heat and power for machine shop.

STATEMENT OF TIMBER OPERATIONS ON PROVINCIAL AND SCHOOL LANDS

April 1st, 1934 to March 31, 1935

	Licensed Timber Berths	Permit Timber Berths	School Lands Timber Berths	Provincial Lands Timber Permits	School Lands Timber Permits	Totals
Number of active operations	37	138	15	3,268	292	3,750
Lumber, (F.B.M.)*	26,427,718	14,729,716	935,087	16,771,232	715,134	59,578,887
Railway ties	157,278	560,693	36,757	294,116	12,150	1,060,994
Piling (lineal feet)	1,250	3,108	.....	18,036	.....	22,394
Mining Timber (lineal feet)	6,918	5,140	.....	520,704	56,000	588,762
Lath	5,071,960	990,500	.....	.....	.....	6,062,460
Telegraph and Telephone Poles	.....	.....	.....	29,383	.....	29,383
Building Logs (lineal feet)	.....	256	.....	360,085	3,494	363,835
Fence Rails	.....	.....	.....	1,284,554	1,650	1,286,204
Roof Poles	.....	.....	.....	283,045	150	283,195
Fence Posts	.....	200	.....	358,144	5,060	363,404
Shingles	350,000	924,500	.....	344,300	.....	1,618,800
Shingle bolts (cords)	.....	13	.....	129	15½	157½
Cordwood (cords)	443	2,018	18	4,966	1,167	8,612

Number of Inspection Reports submitted by Timber Inspectors		2,284
Number of Timber Seizures made on Provincial Lands	179	
Number of Timber Seizures made of School Lands	17	
	196	

*F.B.M.—Feet, board measure.

SUMMARY OF SUB-AGENCY DUTIES PERFORMED BY TIMBER INSPECTORS

April 1, 1934 to March 31, 1935

Inspection Districts	Sub-Agency	Entries		Reservation for Minors	Improvements	Statutory Declarations	Abandonments	Applications for					Miscellaneous	Total Transactions	Revenue Collected
		Homestead	Soldier Grant					Cancellations	Grazing Leases and Permits	Hay Permits	Timber Permits	Patent			
Edmonton	Breton	7	1	....	1	....	4	12	....	....	12	6	3	46	$ 137.25
Edson	Edson	39	1	....	3	....	1	10	1	4	5	8	7	79	527.63
Athabasca	Athabasca	104	1	....	10	....	7	50	2	2	35	22	16	249	1,608.56
	Barrhead														
Bonnyville	Bonnyville	138	....	....	18	24	6	89	15	6	43	21	24	384	2,249.11
McMurray	McMurray	1	....	....	....	....	....	....	....	....	2	....	....	3	45.00
Slave Lake	Slave Lake	19	1	....	....	....	2	10	....	23	....	....	2	57	455.50
Grande Prairie	Debolt	68	1	5	17	63	18	43	4	7	52	79	22	379	1,668.03
	Spirit River														
Peace River	Fairview	86	....	2	14	57	34	53	39	6	77	161	62	591	2,156.88
	Hines Creek														
	McLennan														
TOTALS		462	5	7	63	144	72	267	61	48	226	297	136	1,788	$8,847.96

Nursery and Tree Distribution

Nursery.—The tree nursery operations of the Forest Service at the mental institutes at Oliver and Ponoka, and the jails at Fort Saskatchewan and Lethbridge were continued on a larger scale than in preceding years. The principal nursery is at Oliver, whence all transplants are shipped and seedlings are provided for the subordinate nurseries; there, under direction, patients from the mental institutes provide the labour.

Following is a statement of the amount of planting in seed-beds at Oliver in the spring of 1935; these seed-beds are four feet wide, and the amount of seeding is shown in lineal feet:—

435	lineal ft.	White spruce (*Picea glauca*).
50	"	" Norway spruce (*Picea excelsa*).
81	"	" White elm (*Ulmus americana*).
9	"	" European common spruce (*Picea tianschanica*).
12	"	" Scotch pine (*Pinus sylvestris*).
7	"	" Ladoga pine (*Bugnet—Pinus sylvestris*).
4	"	" Limber pine (*Pinus flexilus*).
9	"	" Douglas fir (*Pseudotsuga mucronata*).
10	"	" Red pine (*Pinus resinosa*).
5	"	" Pinon pine (*Pinus edulus*).
21	"	" Colorado blue spruce (*Picea pungens*).

The following one-year-old seedlings are in the seed-beds:—

120,000	White spruce (*Picea glauca*).
10,400	Lodgepole pine (*Pinus murrayana*).
5,000	Douglas fir (*Pseudotsuga mucronata*).
2,000	Siberian larch (*Larix sibirica*).
400	Scotch pine (*Pinus sylvestris*).
30	Ladoga pine (*Bugnet—Pinus sylvestris*).
20	White pine (*Pinus strobus*).
2,000	Red pine (*Pinus resinosa*).

The following two-year-old seedlings are in the seed-beds:

30,700	White spruce (*Picea glauca*).
8,900	Nordman fir.
1,900	Red pine (*Pinus resinosa*).
275	Douglas fir (*Pseudotsuga mucronata*).
40	Limber pine (*Pinus flexilus*).
2,100	Lodgepole pine (*Pinus murrayana*).

In the spring of 1935 seeds of the following exotics were planted in small quantities:

Butternut (*Juglans cinerea*).
Shagbark hickory (*Carya ovata*).
Black walnut (*Juglans nigra*).
White oak (*Quercus alba*).
Bur oak (*Quercus macrocarpa*).
Mountain ash (*Pyrus americana*).

Seeds and seedlings of the following exotics which were planted in previous years and which are doing well are:—

Silver maple (*Acer saccharinum*).
Austrian pine (*Pinus nigra*).
Japanese walnut (*Juglans cordiformis*).
Cedar (*Thuja occidentalis*).
Filberts.
Black walnut (*Juglans nigra*).
Yellow birch (*Betula lutea*).
Catalpa.
Black locust (*Robinia pseudacacia*).
Cereocarpus (*Purvifolious*).
Horse chestnut (*Aesculus hippocastanum*).
Manchurian maple.
Russian olive (*Elaeagnus angustifolia*).
Honey locust (*Gleditsia*).
Beech (*Fagus grandifolia*).
Blackfoot poplar (From Mr. Griffin of Brooks, Alberta).
Sugar maple (*Acer saccharum*).
English walnut (*Juglans regia*).
Red oak (*Quercus rubra*).
Black willow (*Salix nigra*).
Peach-leaved willow (*Salix amygdaloides*).

From seeds planted in the fall of 1934 it is estimated that the following number of seedlings are thriving:—

200 Beech (*Fagus grandifolia*).
8,400 White ash (*Fraxinus americana*).
4,400 Red oak (*Quercus rubra*).
21,000 Bur oak (*Quercus macrocarpa*).

Seedlings were taken from Oliver for the transplant beds at outside points in the following quantities:

For Fort Saskatchewan Jail:—
3,000 Lodgepole pine (*Pinus murrayana*).
38,000 Scotch pine (*Pinus sylvestris*).
For Ponoka Mental Institute:—
93,000 Scotch pine (*Pinus sylvestris*).
For Lethbridge Jail:—
28,000 Scotch pine (*Pinus sylvestris*).

These seedlings were set out in transplant beds prepared at the locations as shown. The work was done at the jails by inmates under the direction of guards, and at Ponoka under the supervision of a man sent by the Service to direct the work. The principal transplant beds are, however, established at Oliver and species will be available for distribution from this centre as follows:—

In 1936:—
18,000 Green ash (*Fraxinus pennsylvanica*).
330 Mountain ash (*Pyrus americana*).
400 Bur oak (*Quercus macrocarpa*).
7,000 Scotch pine (*Pinus sylvestris*).
1,400 White elm (*Ulmus americana*).
5,100 Jack pine (*Pinus banksiana*).
27,350 White spruce (*Picea glauca*).
107,275 Lodgepole pine (*Pinus murrayana*).
In 1937:—
2,600 Mountain ash (*Pyrus americana*).
18,400 Scotch pine (*Pinus sylvestris*).
1,250 Ladoga pine (from *Bugnet—Pinus sylvestris*).
350 Yellow pine (*Pinus ponderosa*).
3,240 Red pine (*Pinus resinosa*).
1,650 Lodgepole pine (*Pinus murrayana*).
13,000 Colorado blue spruce (*Picea pungens*).
24,250 White elm (*Ulmus americana*).
1,900 Red oak (*Quercus rubra*).
6,400 Green ash (*Fraxinus pennsylvanica*).

Tree Distribution.—The shipping of trees from Oliver started on May 2nd and ended May 21st, 1935. The spring was late and cold, and snow was lying on the ground when the work began at Oliver.

For the first few days of shipping, the weather was not favourable for the planting of trees in the central and northern parts of the province. The first shipments were therefore sent to southern Alberta, and those for the central and northern areas were sent out later.

Following is a list of the transplants, seedlings, and cuttings shipped from Oliver in the spring of 1935:—

Transplants: 57,348 White spruce (*Picea glauca*).
5,097 Green ash (*Fraxinus pennsylvanica*).
1,446 White elm (*Ulmus americana*).
1,254 Russian poplar (*Populus balsamifera*).
578 Bur oak (*Quercus macrocarpa*).
302 Siberian larch (*Larix sibirica*).
40 Lodgepole pine (*Pinus murrayana*).
370 Colorado blue spruce (*Picea pungens*).
83 Mountain ash (*Pyrus americana*).
745 Scotch pine (*Pinus sylvestris*).
16 Red oak (*Quercus rubra*).
3,300 Laurel leaf willow (*Salix pentandra*).
Sub-total:—70,579.
Seedlings: 1,500 White elm (*Ulmus americana*).
1,500 Scotch pine (*Pinus sylvestris*).
300 Bur oak (*Quercus macrocarpa*).
Sub-total:—3,500.
Cuttings: 6,300 Russian poplar (*Populus balsamifera*).
1,800 Willow (*Salix discolor*).
19,000 Golden willow (*Salix vitellina*).
Sub-total:—27,100.
TOTAL:—101,179.

Of the species listed, those other than White Spruce, Green Ash, Elm, and Russian Poplar were for the most part allotted to institutions.

In addition to these a limited quantity of exotics, useful principally for beautification, were given to the Department of Public Works at Edmonton, the Experimental Farm at Lacombe, the Technical School at Calgary and the University of Alberta.

A total of 300 applications were approved of which 43 were for institutions, 23 for schools and 234 for private individuals. Trees were sent to 136 different express offices.

Before shipping came to an end it was found that it would not be possible to give Green Ash trees to all the applicants to whom they had been promised, as there was a demand for planting them on certain publicly owned lands which had not been foreseen when the approvals were made up. Those who were expecting Green Ash trees which could not be sent were advised of the situation and invited to apply for more trees for 1936.

In addition to the stock given to the various organizations and individuals already mentioned, the following seedlings were also despatched:—

To the Park Superintendent, City of Calgary:—
25,000 White elm (*Ulmus americana*).
5,000 Scotch pine (*Pinus sylvestris*).
To the Western Nurseries, Calgary:—
5,000 White elm (*Ulmus americana*).

The latter shipment was made in return for some seed which had been donated to the Oliver nursery.

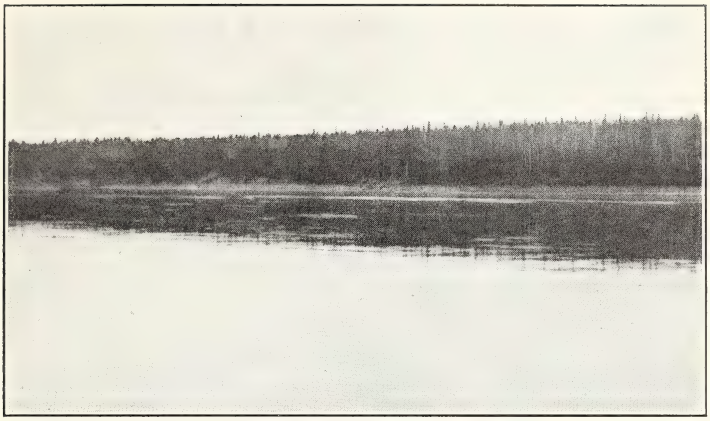
Of all the applicants, only two individuals failed to call at the express station for their trees, and in each case the railway company was instructed to give the trees to anyone who would pay the express charges.

A crew of eight, single, unemployed men was engaged for two days, under the direction of one of the forestry labourers from Oliver, in refilling the gaps in the avenue of trees between North Edmonton and Oliver, the first planting of which was made last year. It had been hoped to continue the work to Fort Saskatchewan, but the lateness of the saeson made this impracticable. Replacing of the casualties in last year's planting was all that could be done.

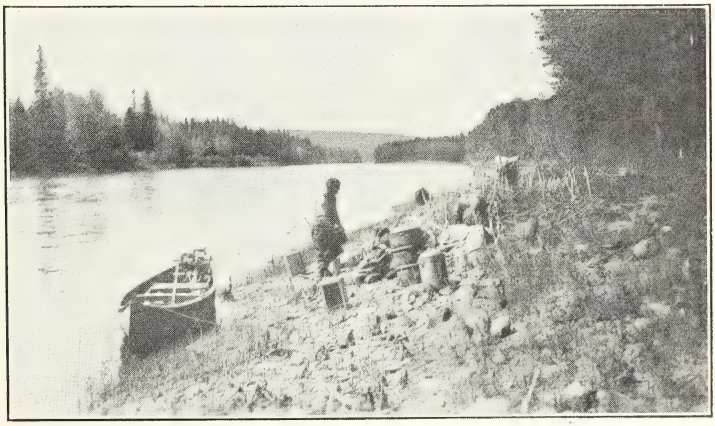
Publicity

During the past few years, the amount of publicity given to forest protection has been strictly limited. There is no change to report and the means available continues to be a limited contact with school children, contact with forest travellers, posters displayed throughout forested territory and articles of general forestry interest in the press. The results, considering the extent of the campaign, are satisfactory but only point to the desirability of a more extensive use of the agencies offering for this purpose. The opportunity to do a greater degree of good in the interest of forest protection offers itself through the right form of publicity. To be of value, this publicity must be a continuous and well sustained effort.

Public Relations.—Direct contact with the public comes about through requirements of forest protection and the disposal of forest resources. On both counts the situation is generally satisfactory, a feeling of understanding having been developed which in turn has in many instances led to unsolicited and mutually beneficial co-operation.



Timber stand on Wabisca River



Wabisca River below the Bad Rapids

MILEAGE TRAVELLED BY EMPLOYEES OF THE ALBERTA FOREST SERVICE

April 1st, 1934 to March 31, 1935

Divisions	Foot	Saddle	Driving	Speeder	Auto	Canoe	Rowboat	Motorboat	Railway	Raft	Dogteam	Total
Northern Alberta Forest District (Fire Rangers)	19,881	42,911	7,849	12,958	19,031	6,736	295	4,612	2,409	59	.....	116,741
Northern Alberta Forest District (Timber Inspectors)	3,577	1,262	3,109	2,701	66,539	198	13	2,118	13,316	.....	22	92,855
Clearwater Forest	5,911	10,754	2,193	1,539	10,814	.....	11	.....	1,151	.....	.....	32,373
Brazeau-Athabasca Forest	4,024	19,109	.....	5,879	1,840	.....	.....	.....	2,975	.....	.....	33,827
TOTALS	33,393	74,036	13,151	23,077	98,224	6,934	319	6,730	19,851	59	22	275,796

NOTE:—This statement accounts for the travelling done on forestry business by 83 men, the majority of whom were employed only during the fire season.

Fisheries

REPORT OF THE DIRECTOR OF FISHERIES, R. T. RODD

A review of the fiscal year ending March 31st, 1935 discloses a more healthy and prosperous situation for the Fisheries Division than has been evidenced for the three previous years.

During the period of this report several fishermen's conferences were attended with a view to amicably arranging details, which would remove much of the overlapping in production from various lakes, and in the marketing of fish for export trade together with the adjustment of regulations to meet the wishes of fishermen and the interests of the fisheries generally. Some attention was given to marketing problems and the possibilities of the Marketing Act as it applies to the fishing industry. Considerable assistance was given in this respect by the Dominion Government Trade Commissioner in New York, especially with regard to markets and the adjusting of difficulties existing between shippers and the eastern buyers, which was appreciated by the fisheries' interests.

The effect on the markets by over-production or over-lapping of production from various lakes was evidenced at one period during the winter, when during this time the price dropped some six cents per pound as the result of too much fish being placed on the markets at one time. Fortunately, this condition only lasted a few days, but it meant considerable loss to both the fishermen and the shippers. Incidentally, the careless handling and packing of fish by a few of the fishermen were causes for some complaint.

Angling during the year suffered to a certain extent from drought with the usual low water conditions reported in some districts. A number of the smaller streams in the southern part of the province were dangerously low in the latter part of August making it necessary to remove trout to more suitable waters. Early snowfalls, however, and rains in the beginning of September greatly improved conditions. A certain loss during the winter was reported as a result of streams freezing to the bottom.

An increase is shown in the number of angling permits and licenses issued during the year and also in the amount of fish taken. Further details of these particulars will be shown later in this report.

Commercial Fishing

Commercial fishing for the period under review amounted to a total of 4,059,436 pounds, an increase of 493,080 pounds over the previous year. The value of the year's catch to fishermen was $145,189.54, an increase of $14,065.19 over the previous year and the value as marketed was $244,070.77, an increase of $43,315.53.

The total production shows increases in winterfish, tullibee, pike and perch with decreases in trout, pickerel, sucker, ling, goldeye and mullet. Some new equipment was purchased and there was a renewal of licenses to fishermen who for one reason or another did not operate the previous year. A great many old nets are still in use after being patched up. In cases where new equipment was purchased dealers were more liberal in the extension of credit. Some new 4½" mesh nets were purchased at lakes where this class of mesh is permitted. These purchases were made as a result of better market conditions during the

latter part of the year fro the coarser varieties of fish. The number of fishermen operating at Pigeon and Wabamun lakes was very much increased, each of these lakes in fact, employing a greater number of operating fishermen than any other lake in the province. They are now considered to be the most popular, due in the first place to their closer situation to markets and in the second to their easy approach to railways.

Lesser Slave Lake.—This lake was heavily fished during the early part of the year resulting in a big increase of whitefish production. A considerable decrease, however, was noticeable in coarse fish due to the poor market for this variety during the summer months. Both pickerel and pike show decreases. The increase in whitefish taken approximates 245,000 pounds and the decrease in pickerel, 50,000 pounds. There was a large increase in both values to fishermen and values as marketed. The number of fishermen operating was reduced by 28 with an increase shown per capita per net for whitefish.

During December whitefish again showed an increase with a corresponding decrease in coarser varieties of fish. This was partly attributable to the fact that fishing for these coarser varieties was confined to smaller areas and that more fishermen were operating for whitefish only.

It is also recognized that whitefish are again becoming numerous and with profitable markets the fishermen were enabled to recuperate to some extent their former losses. Large decreases in every species were reported for the period January 1st to March 31st with the exception of perch fishing which shows an increase of approximately 21,000 pounds. The extraordinary severe winter which was experienced prevented fishing for many days, below zero weather and snow storms being general throughout the entire season. It is particularly gratifying to be able to report whitefish as more abundant than formerly, indicating that the restocking policies together with the restricted areas for the fishing of coarser varieties are having effect.

Lac La Biche.—Lac La Biche, the second most important lake in the province, was fished satisfactorily during the summer but poorly during the two winter periods. This lake is not considered to be a good winter fishing lake excepting for tullibee and the coarser species which are generally peddled throughout the province. During the summer, increases which were noted in all the varieties taken, were as follows:—whitefish, approximately 25,000 pounds, pickerel 48,000 pounds, pike 41,000 pounds and tullibee 19,000 pounds. Prices prevailing were fair to good. These increases are partly attributable to the fact that twenty-four more fishermen took out licenses. Most of the summer catch was exported to the United States. During December twenty less fishermen took advantage of the fishing with a correspondingly large decrease for all species recorded. The total reduction from December to March was approximately 118,000 pounds with lower values to fishermen and values as marketed.

During the winter fishermen in the Lac La Biche district were permitted to fish with 4½" mesh nets in the following lakes:—Blackett, Elinor, Frenchman, Ironwood, Jackson and Kinnaird, the catch running mainly to the coarser varieties such as pike, pickerel, perch and tullibee. Prices obtained were fair, exports being shipped mainly from Lac La Biche, the centre of this lake district. Due to the small variety of fish found in some of these lakes where the catch of whitefish is the exception rather than the rule, but where whitefish can be improved both in size and quantity, it was felt that the use of a 4½" mesh in certain areas would improve conditions by removing a quantity of the smaller and more destructive varieties of fish.

Cold Lake.—The winter catch at this lake showed an increase for the month of December of approximately 19,000 pounds of whitefish and a reduction of 13,000 pounds of trout with fifteen more fishermen operating. Better prices as a rule were obtained. From January 1st to March 31st approximately the same amount of fish was caught as in the previous year with seven less fishermen operating. Trout during this period increased by 5,000 pounds with whitefish showing a reduction of approximately 6,000 pounds. This lake is regarded always as steady in its production. Owing to the inclement winter weather prevalent throughout northern Alberta many of the pedlars arrived too late for the purchase of fish and in consequence very little of the production from either Cold or Primrose lakes was disposed of in this manner. Most of the fish caught during the year was exported.

Primrose Lake.—Primrose Lake, just north of Cold Lake, reported an increase of approximately 10,000 pounds of whitefish with five more fishermen operating in the small section of that water which is situated in Alberta. This portion of the lake is not favourably considered as a fishing area.

Big Whitefish Lake and Little Whitefish Lake No. 2.—These lakes were fished by twenty-eight fishermen with a slightly higher catch of whitefish. A small quantity of this production was shipped in a frozen state but prices as a rule ranged higher due to the majority of the fish being larger in size.

Pigeon Lake.—Fishing at Pigeon Lake was delayed until well into January because of market conditions and in order that the catch should be profitably marketed the length of mesh was reduced to 100 yards per license. In this way the catch was spread over a longer period. Pickerel production in comparison with last year showed an increase of over 10,000 pounds. A feature that assisted the production of this lake was the large increase of licenses issued, which totalled 374, an increase of 186 over the previous year. With the reduction of net yardage and increase of licenses permitted many farmers with numbers of their families applied for and received permission to fish which accounts in some degree for the larger number of licenses issued. The fish caught in this lake vary but little in size and are easily distinguishable from the whitefish caught in other lakes of the province. The product from Pigeon Lake is marketed without difficulty. In view of the large amount of domestic and Indian fishing during the summer and the great increase in the number of commercial licenses annually issued this lake must of necessity receive the acme of protection to prevent depletion.

Winnifred Lake.—Winnifred Lake was again fished during the month of December with an increased catch of 27,000 pounds of whitefish produced by four fishermen. The period from January 1st to March 31st showed an increase of roughly 25,000 pounds with fewer fishermen operating. The lake is apparently once more a large producer of whitefish due to the comparative rest it has received since the noticeable production of 1929. Most of the fish was marketed in the United States with good prices obtainable.

Wabamun Lake.—Wabamun Lake again produced heavily during the summer fishing, the catch for the early part of September being so heavy that fishermen were unable to handle the product satifactorily. Reports of fish poorly packed and iced were frequent. It is apparent that the product was full of spawn, was soft and in no condition to be shipped satisfactorily. The number of boats, ice houses and boxes were quite insufficient to provide for good marketing.

An increase of approximately 40,000 pounds of whitefish was produced during the summer with an additional forty-six licensed fishermen operating. The catch in December showed an increase of 53,000 pounds of whitefish with an increase of fifty fishermen employed. In the period from January 1st to March 31st a slight decrease of 6,000 pounds was shown although the increase of licenses issued numbered ninety-four. During this period the Department felt that this lake had already been too heavily fished with the result that a final catch of 50,000 pounds was decided upon which was taken in a very few days. During this period the amount of yardage permitted was reduced to sixty yards of gill nets per fisherman. Wabamun fish as a whole were intensely competed for throughout the entire year by both pedlars who were unable to get to the northern lakes as a result of poor roads and by dealers for the United States markets. Prevailing prices were high and good returns were obtained by fishermen. The proximity of the fishing stations to the railway and larger towns generally results in the fish from this lake being disposed of easily and in good condition. This was particularly so during the season under review with the exception of the September catch as previously stated.

Calling Lake.—Calling Lake provided thirty-two fishermen with good fishing during the month of December, a total of 116,000 pounds being caught. A closed season covering a period of three years for whitefish was made effective at this lake, an exception only being granted in favour of coarse fish in certain areas provided for by legislation. The whitefish catch per capita for this year was considered good, though the quality was not as marketable as that of other lakes. Distance to rail and poor road conditions are adverse factors. During December planes were used to market some of the catch for export trade and the fish arrived at the railhead in fair condition. From January 1st to March 31st owing to heavy snows and poor roads and in view of the small amount still to be taken to reach the limit permissible, fishing was very light, eight men only being employed during this period and an approximate amount of 7,000 pounds of whitefish taken. This catch, together with that of the pike and pickerel, was marketed locally.

Other lakes such as Moose, Wolf, McGregor, Newell, Pinehurst, Touchwood, Gregoire, Marie, Muriel, Keehiwin, Shining Bank and Bourque in the Lac La Biche, Wabamun and Cold Lake districts fished as usual with practically the same number of fishermen and with the same amount of fish taken out as heretofore. Generally speaking the catch from these smaller lakes is disposed of to pedlars or locally with the usual steady prices prevailing.

Equipment.—Some new equipment was purchased during the year. These purchases were made principally by the number of new fishermen operating. With reference to the use of boats, ice houses, etc., the men employed who were better off in such equipment shared on a mutual basis with those not so well situated. Generally speaking, the use of better equipment throughout this period was noticeable.

Markets.—A most satisfactory improvement regarding markets may be reported for the entire year under review. The total increase to fishermen amounted to $14,065.19 and the increase of value as marketed to $43,315.53 which reflected better markets prevailing. The Fisheries Division again co-operated with the fishermen and dealers by meeting their requirements when possible and granting extensions or closing seasons when and as the market warranted.

A complete check up was made by receiving information from all dealers with reference to the amount of fish which they individually exported with details covering varieties and prices obtained. It would appear that nearly 85% of the fish produced in this province is shipped to eastern markets. Any unusual factor of an adverse nature in these markets must therefore of necessity reflect seriously on the livelihood of the fishermen in this province. In this respect the facilities of the Canadian Trade Commissioner have been freely used and given with the result that the general trend in the east is for more co-operation with the western provinces in order to prevent overlapping. Local markets were well supplied with fish during the open seasons. Whitefish was disposed of freely and there were only one or two occasions when this fish could not be supplied in the green or fresh state when required. Local retail prices generally were lower having to meet competition of lower priced salt-water fish from the Pacific Coast.

Transportation.—Deep snows and poor road conditions with below zero weather prevented the usual facile methods of transportation evidenced as a result of great improvements during recent years. Many pedlars were unable to get their usual supply from favourite lakes. The freezing of fresh fish also occurred in some cases due to distance from railhead and instead of being exported in the fresh or green state necessarily had to be disposed of in a frozen condition. Planes were used to some extent to market fish caught at Calling Lake as road conditions were too difficult. In spite of the very cold weather and heavy snowfalls the product from Pigeon Lake was marketed in a fresh condition. Railway companies took great care to provide the necessary express cars when required.

Domestic Fishing.—The favourite lakes for this class of fishing are those approximating the good farm districts such as Wabamun, Pigeon, Buffalo, Chin and Buck. Lac La Nonne and Lac Ste. Anne are well fished from a domestic viewpoint, reports indicating that fishing was good throughout. Buck Lake stood out as an exception though prior to this year it had been very heavily fished. The total amount of all kinds of fish taken under domestic licenses amounted to 616,840 pounds with an estimated valuation of $35,343 as against a total of 411,250 for the year previous, an increase of 205,590 pounds. This is in the main due to the fact that more licenses were issued, namely a total of 654, as again the previous year's total of 508, an increase of 146.

Indian Fishing.—Fishing permits issued to Indians during this period totalled 842, a reduction of 68 from last year. The estimated amount of fish taken by the native population reached 1,106,275 pounds of all kinds with an estimated valuation of $57,976. A number of Indians fished commercially during the year. A close watch is kept by the various officers to see that fish caught under Indian permits are not disposed of commercially. Unscrupulous persons frequently take advantage of the opportunity of purchasing fresh whitefish caught in close season by Indians. Several prosecutions were instituted during the year against these offenders.

The following tables show the amount of fish exported from Alberta during the past year to various eastern markets:—

FISH SHIPPED DURING THE SUMMER SEASON OF 1934

Destination	Trout, lbs.	Whitefish, lbs.	Pickerel, lbs.	Pike, lbs.	Perch, lbs.	Tullibee, lbs.	Pickerel Fillets, lbs.	Total lbs.
Chicago	.....	565,920	196,478	44,925	11,800	11,713	30,110	860,946
New York	.....	251,520	149,959	53,042	17,514	3,530	.....	475,565
Montreal	.....	6,226	15,982	3,360	1,262	1,346	.....	28,176
TOTALS	.....	823,666	362,419	101,327	30,576	16,589	30,110	1,364,687

FISH SHIPPED DURING THE WINTER SEASON OF 1934-35

Chicago	28,200	497,502	97,341	130,644	31,242	32,916	.....	817,845
New York	13,756	389,557	140,432	112,778	49,864	25,793	.....	732,180
Montreal and Toronto	6,150	4,110	600	.....	.....	.....	.....	10,860
Minneapolis	.....	8,080	12,996	1,070	250	.....	.....	22,396
TOTALS	48,106	899,249	251,369	244,492	81,356	58,709	.....	1,583,281

FISH SHIPPED DURING THE FISCAL YEAR 1934-35

Summer Season	.....	823,666	362,419	101,327	30,576	16,589	30,110	1,364,687
Winter Season	48,106	899,249	251,369	244,492	81,356	58,709	.....	1,583,281
TOTALS	48,106	1,722,915	613,788	345,819	111,932	75,298	30,110	2,947,968

NOTE: The total of 48,106 lbs., trout, as shown above, represents the amount exported from Cold Lake during the winter season from both Alberta and Saskatchewan portions of the lake.

TOTAL AMOUNT OF FISH TAKEN FOR COMMERCIAL PURPOSES—IN ORDER OF IMPORTANCE

Classification	Period	Weight	Lbs.	Value to Fishermen		Value as Marketed	
WHITEFISH	May 16/34 to Sept. 30/34	934,968		$ 43,030.36		$ 78,958.38	
	Dec. 1/34 to Dec. 31/34	515,530		19,095.50		36,412.00	
	Jan. 1/35 to March 31/35	495,723		31,089.00		45,213.00	
			1,946,221		$ 93,214.86		$160,583.38
LAKE TRUT	May 16/34 to Sept. 30/34	.....		.....		.....	
	Dec. 1/34 to Dec. 31/34	12,616		$ 698.00		$ 1,384.00	
	Jan. 1/35 to March 31/35	19,843		1,203.00		2,322.00	
			32,459		1,901.00		3,706.00
PIKE	May 16/34 to Sept. 30/34	230,695		$ 2,529.27		$ 2,572.27	
	Dec. 1/34 to Dec. 31/34	197,803		4,049.00		4,725.00	
	Jan. 1/35 to March 31/35	315,060		5,551.00		7,425.00	
			743,558		12,129.27		14,722.27
PICKEREL	May 16/34 to Sept. 30/34	507,511		$ 15,738.06		$ 30,739.12	
	Dec. 1/34 to Dec. 31/34	34,523		1,142.00		1,791.00	
	Jan. 1/35 to March 31/35	164,687		10,077.00		14,790.00	
			706,721		26,957.06		47,320.12
TULLIBEE	May 16/34 to Sept. 30/34	99,749		$ 1,001.00		$ 1,101.00	
	Dec. 1/34 to Dec. 31/34	32,775		494.50		751.00	
	Jan. 1/35 to March 31/35	122,143		3,328.00		5,327.00	
			254,667		4,823.50		7,179.00
PERCH	May 16/34 to Sept. 30/34	52,164		$ 1,671.10		$ 3,083.00	
	Dec. 1/34 to Dec. 31/34	4,335		212.00		281.00	
	Jan. 1/35 to March 31/35	65,364		2,898.00		5,566.00	
			121,863		4,781.10		8,930.00
SUCKER LING GOLDEYE MULLET	May 16/34 to Sept. 30/34	131,546		$ 481.00		$ 481.00	
	Dec. 1/34 to Dec. 31/34	37,025		279.75		280.00	
	Jan. 1/35 to March 31/35	85,376		622.00		869.00	
			253,947		1,382.75		1,630.00
	TOTALS	4,059,436	4,059,436	$145,189.54	$145,189.54	$244,070.77	$244,070.77

Licenses and Permits.

With the exception of Indian permits, there was a large increase in all kinds of licenses issued during the year. The following summary shows the number of licenses and permits issued during the last five years:—

Fiscal Year	*1930-31	1931-32	1932-33	1933-34	1934-35	Total
Domestic licenses	566	555	458	508	654	2,741
Fishermen's and commercial licenses	1,033	755	598	746	1,296	4,428
Angling permits sold by Fisheries Division	7,731	6,533	4,963	4,823	5,015	29,065
Angling permits sold by Forestry Division	.....	566	478	397	475	1,916
Indian permits	1,130	736	860	910	842	4,478
Boat licenses	.....	.....	.....	.....	33	33
TOTALS	10,460	9,145	7,357	7,384	8,315	42,661

LICENSES AND PERMITS, FISCAL YEAR 1934-35, IN COMPARISON WITH PREVIOUS YEAR

	Increase
Domestic licenses	146
Fishermen's and commercial licenses	550
Angling permits sold by Fisheries Division	192
Angling permits sold by Forestry Division	78
Boat licenses	33
	999
Less decrease in Indian permits	68
Net Increase	931

*Six months to March 31.

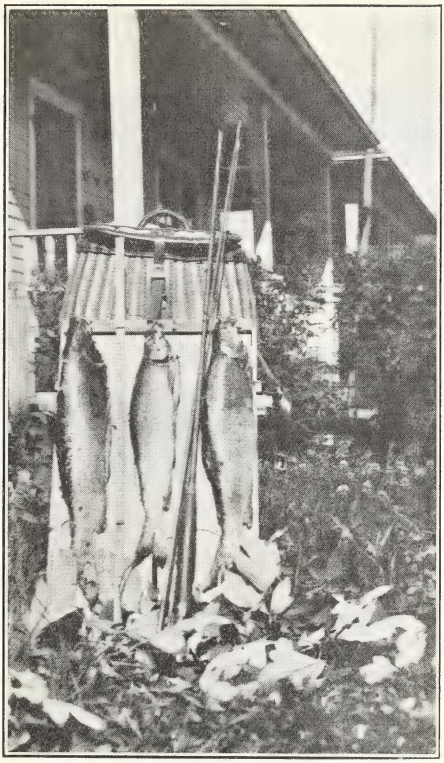
Angling.—The increase of 270 in the sale of angling permits for this year reveals also an increase of 65,589 pounds in the year's catch for trout, Rocky Mountain whitefish and Arctic grayling. The extremely cold weather and heavy snows during the entire winter season, however, affected the amount of coarse fish taken. It was quite impossible for anglers living in cities and situated some distance away from the more popular lakes to reach these favourite spots and only a minimum of winter fishing was therefore enjoyed. Fishing for rainbow, cutthroat and other types of game fish was exceptionally good in the Highwood, Bow, Elbow and Edson districts and reports from southern Alberta indicated that rainbow trout were thriving and giving greater sport than ever. Fishing in this part of Alberta was in many respects better than it has been for years.

FISH CAUGHT BY ANGLERS, 1934-35

Trout	261,989 lbs.	35,989 lbs.	increase
Rocky Mountain Whitefish	100,000 "	21,000 "	increase
Arctic grayling	58,600 "	8,600 "	increase
Goldeye	24,900 "	17,170 "	increase
Pickerel	102,350 "	47,650 "	decrease
Perch	288,905 "	58,905 "	increase
Pike	561,059 "	184,941 "	decrease
TOTAL	1,397,803		

or a decrease of 90,927 lbs. on the year's operations.

As already stated, an increase appeared in the number of angling permits issued and the total weight of the game fish catch. In the above table it will also be noted that increases appear in the catches of all species with the exception of pickerel and pike, the decreases of which are sufficiently heavy to show a general decrease for the year's total.

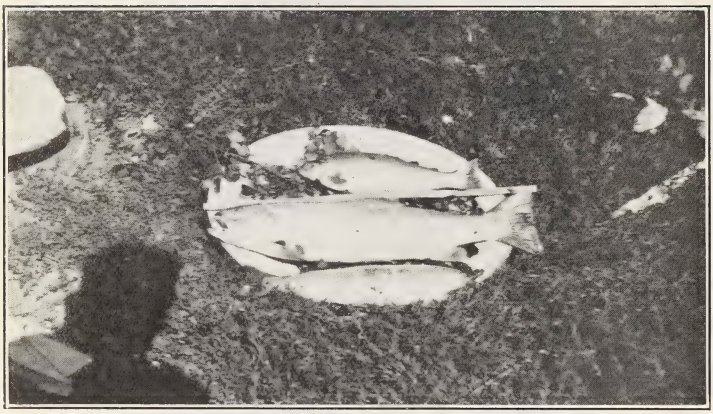


Arctic Grayling caught in Christina River near Conklin, Alberta

Loss of Fish—Rescuing Fish.—The serious drought conditions in southern Alberta during the last few seasons have been the cause of much apprehension and have involved the loss of a certain amount of game fish. During the season under review, however, some streams, which in previous years have been dangerously low, were in much better condition, while on the other hand certain districts, where previous to this season there had been no drought, experienced streams which went completely dry.

While some of the streams in the Crowsnest were fairly low, none went completely dry, which was a considerable improvement over the previous year. A section of Willow Creek and the north fork of Fish Creek went dry for a short period during the latter part of August but very little loss was evidenced as the disappearance of the water was so gradual that most of the fish escaped without assistance and the fishery guardians, anticipating such an occurrence, were prepared, and did rescue a number of fish that were likely to become stranded.

The early snowfall and wet weather in September greatly improved conditions and all streams south of the Bow River, with the exception of Fish Creek, were in good condition during the fall and winter. Some loss was reported in Fish Creek during the winter caused by water freezing to the



Rainbow trout caught in Bow River, four miles west of Carseland Dam.
Centre fish weighs 4¾ lbs., length 24 inches.

Rainbow trout caught in the Elbow River. Length 22 inches.

bottom and deep pools becoming stagnant as a result. In the district west of Olds and Innisfail several tributaries of the Red Deer River went dry during midsummer, and others which continued to flow during the summer months froze to the bottom during the winter, causing no doubt considerable loss, which could not possibly be prevented.

Surveys of the district were made during the early fall and in the month of March, with a view to determining what loss occurred and also to obtain information beneficial for stocking operations.

The number of fish rescued during the summer season was as follows:

North Fork of Fish Creek—250 trout.
Tributaries of the Highwood River—123 trout, 33 Rocky Mountain whitefish.
North Fork of Willow Creek—400 trout, 60 Rocky Mountain whitefish.

Predaceous Fish Removed from Trout Waters.—The number of predaceous fish removed from trout waters throughout the year was not so large as in previous years dut to the heavy removals of other seasons. The greatest numbers taken this year were from waters from which none had been previously removed.

Some assistance in this work was given by fur farmers, who required the suckers to feed their fur-bearing animals. During 1934 the following predaceous fish were removed from game fish waters:—

	Dolly Varden	Pike	Sucker	Ling	Total
Twin Butte area (Guardian Allred)	.....	.....	70	.....	70
Willow Creek area (Guardian Comrie)	10	104	769	.....	883
High River area (Guardian Smith)	8	.....	742	8	758
Elbow River area (Guardian Fullerton)	.....	21	2,125	.....	2,146
Sundre area (Guardian Thompson)	.....	820	1,398	.....	2,218
Calgary district (Inspector Richardson)	.....	23	8,444	20	8,487
TOTALS	18	968	13,548	28	14,562

Observance of Regulations.—Prosecutions during the year totalled 60, a decrease of 2, and confiscations of illegal gear amounted to 59, or an increase of 6.

The following is a summary of the prosecutions which materialized during the year:—

Fishing without a license	11
Operating too much yardage	10
Fishing in closed season	10
Use of nets in closed streams	5
Having illegally caught fish in possession	4
Using illegal apparatus	4
Offering for sale illegally caught fish	3
Fishing without a permit	3
Fishing in a closed stream	3
Fishing with unbaited hooks	2
Having undersized trout in possession	1
Pollution of stream	1
Having no license numbers on nets	1
Operating a dam without a proper fishway	1
Fishing with a set line	1
TOTAL	60

Irrigation.—A close check is still continued by the various Fisheries officers on the forty-five irrigation schemes which are drawing their water supply from streams or rivers containing fish. Complaints were received regarding two of these where loss of fish was claimed. The complaints are being given the necessary attention. In addition to the schemes already in existence, the ninety-three applications for the right to divert water for domestic and industrial purposes were dealt with. As the greater number of these applications were for permission to dam coulees and non-perennial streams to conserve the spring run-off and a small number for the right to pump water from larger rivers for domestic, industrial or irrigation purposes, none would be detrimental to the fisheries. All applications were therefore approved.

Dams and Fishways.—Although there have been suggestions that fishways or passes should be provided in the large dams in the Bow River and the Glenmore Dam in the Elbow River near the city of Calgary, investigations have proven that these dams are not detrimental to the fisheries, except that a few more fish have been taken immediately below than would be the case if these dams were not in existence. On the other hand the Glnmore Dam in the Elbow River is beneficial to the trout fisheries in that river, as it is preventing great numbers of pike and suckers from ascending into the upper reaches, while very few trout, with the exception of Dolly Varden, are ever taken below the dam.

The Calgary Power Company's dam at the Ghost River possibly prevents some trout from ascending the river, but on the other hand, the large lake above the dam should eventually become one of the finest fishing areas in the province, and should also improve the fishing in the Ghost River. The possibility of installing a fish pass or ladder in this dam has been given serious consideration, but owing to the fluctuation in water levels in the lake above the dam, a fish ladder would be of little or no benefit. A natural channel has been created from the south spillway which if given a little attention from time to time, will be a much more efficient fishway or pass than any fish ladder that can be constructed. The Power Company has agreed to co-operate in seeing that this channel is kept in condition to enable fish to pass upstream when the water is flowing over the spillway.

The Carseland dam owned by the Canada Land and Irrigation Company possibly may prevent a few trout which have been carried down by high water from returning upstream. On the other hand, this dam prevents large numbers of pike and suckers from entering trout waters, and is therefore more beneficial than otherwise. In any case, a large fishway is provided, over which the trout may pass without difficulty.

Pollution of Streams.—Complaints are still being received with regard to pollution of the Bow River at Calgary. It is claimed by some that the oil refineries are responsible whilst others attribute this pollution to the sewage from the city. The matter has been investigated on various occasions, and both the oil refineries and the city have gone to considerable expense to remedy the situation. The city has spent a large amount of money on a sewage disposal plant, while the oil refineries have also spent considerable money in trying to prevent oil or other matter from the refineries entering the river. The condition is not yet all that could be desired, but it is hoped with the continued investigations and careful operation of the sewage plants and the oil refineries, that in the near future the cause of complaint will be entirely eliminated.

In a previous report reference was made to the fact that oil and grease entering the sewers from garages and service stations was the greatest cause for complaint. With the methods now in use at the sewage disposal plant, this objection is now removed.

No other difficulties were experienced during the year. One prosecution, for a minor offence, was the only one in evidence.

Fish Culture

The co-operation of the federal Department of Fisheries and the National Parks Branch of the Department of the Interior in the hatching and distribution of game fish fry and fingerlings from various hatcheries in the national parks was again freely given, and greatly appreciated. It was possible, by such co-operation, for this Department to carry on the re-stocking of trout waters outside

the national parks without difficulty. Owing to the lack of necessary funds, the whitefish hatchery at Lesser Slave Lake was not operated during the year.

The continued drought in the southern part of the province was again the cause of considerable worry and necessitated the exercising of great care in the distribution of fry into streams. Many of these streams were again dangerously low, a few drying up altogether during July and August. It was discovered, however, that by taking proper precaution the loss of any fish during the season was prevented. Inspectors and guardians patrolling the streams regularly and observing conditions were in a position to advise the hatchery superintendents as to which streams were dangerously low or which showed indications of going dry.

As stated in the 1933-34 report, arrangements were made through the Department of Fisheries, Ottawa, for a supply of trout eggs for the 1934 distribution. Eyed eggs ordered for delivery were as follows:—

To Waterton hatchery	700,000 rainbow trout
	300,000 cutthroat trout
To Banff hatchery	450,000 rainbow trout
	400,000 cutthroat trout
	500,000 Loch Leven trout
	100,000 speckled trout
To Jasper hatchery	200,000 rainbow trout

The Loch Leven and speckled trout eggs were delivered to the Banff hatchery in excellent condition. Details of the distribution resulting from the hatching of these eggs are shown later in this report.

Owing to the very poor quality of the rainbow eggs received from Pocatello, Idaho, where the loss at both Banff and Waterton hatcheries were very heavy, settlement was only made for those eggs which developed to swimming fry and an additional supply was obtained from other sources to make up the loss. Out of 450,000 rainbow eggs ordered from Pocatello for delivery at the Banff hatchery only 42,630 were paid for. Of the 700,000 rainbow eggs ordered for delivery at the Waterton hatchery only 284,760 were delivered and 31,000 paid for.

The 200,000 rainbow eggs ordered for delivery at the Jasper hatchery for this Government were included with a shipment for the Dominion Parks Branch, making a total of 525,600 eggs received at the Jasper hatchery. The loss in these eggs was also very heavy and settlement was only made for the number that hatched and survived. No further supply could be obtained to augment this loss with the result that the Parks Branch generously agreed to apportion the fry at distribution stage on a percentage basis. Under this arrangement, the Alberta Government obtained 120,000 swimming fry, which was a greater number than could possibly have been obtained from the 200,000 eggs ordered.

To make up the loss, an additional supply of 450,000 eyed rainbow eggs were ordered from Troy, Montana, for delivery at the Banff hatchery and 600,000 for delivery at the Waterton hatchery. From those delivered at the Banff hatchery, 24,128 loss occurred in the first fifteen days, leaving a balance of 425,880 to be paid for. At the Waterton hatchery 613,500 eggs were received, the loss in this lot for the first fifteen days being 38,700. The number of eggs paid for totalled 574,800.

By an exchange of eggs, the Department of Fisheries, Ottawa, was able to obtain from the United States Bureau of Fisheries 456,000 eyed cutthroat trout eggs from Yellowstone Park for delivery to the Waterton hatchery and 557,700 for delivery to the Banff hatchery in addition to 669,395 received from Troy, Montana. After the usual loss through handling and other causes,

306,000 were allotted to the Provincial Government at the Waterton hatchery and 430,425 at the Banff hatchery.

The number of plantings during the year from the Waterton hatchery into provincial waters was 72, as compared with 53 for the previous year, an increase of 19. The plantings from the Banff hatchery totalled 96, as compared with 89 for the previous year, an increase of 7, while the plantings from the Jasper hatchery show a decrease of 15, only 11 plantings being made, as compared with 26 for the previous year. The number of fry and fingerlings distributed into waters outside the national parks shows a total of 2,361,865, an increase of 181,015 over the previous year.

Details of the distribution from the various hatcheries into waters outside the national parks are as follows:—

WATERTON

RAINBOW TROUT

Name of Waters	Fry	Advanced Fry	Fingerlings No. 1
Tributaries to Castle River:—			
Beaver Dams (Screwdriver Creek) (sec. 24, t. 4, r. 4, w5m., sec. 6, t. 5, r. 3, w5m., sec. 36, t. 4, r. 4, w5m.)*	.....	.....	25,000
Carbondale River	.....	.....	10,000
Link Creek	.....	.....	5,000
Unnamed Creek (sec. 14, t. 6, r. 4, w5m)*	.....	.....	5,000
Unnamed Creek (sec. 4, t. 5, r. 3, w5m)*	.....	.....	10,000
Unnamed Creek (sec. 3, t. 5, r. 3, w5m)*	.....	.....	10,000
Beaver Lake (sec. 11, t. 5, r. 3, w5m)*	.....	.....	10,000
Beaver Dams (sec. 2, t. 5, r. 3, w5m)*	.....	.....	10,000
Beavermines Creek (sec. 19, t. 5, r. 2, w5m., sec. 13, t. 5, r. 3, w5m)*	.....	.....	20,000
Gladston Creek	.....	15,000	.....
Mill Creek	.....	20,000	.....
Tributaries to Crowsnest River:—			
Allison Creek	.....	15,000	.....
Byron Creek	.....	10,000	.....
Star Creek	.....	5,000	.....
Blairmore Creek	.....	20,000	.....
Gold Creek	.....	15,000	.....
Todd Creek	.....	25,000	.....
Crowsnest Lake	.....	30,500	.....
Crowsnest Lake	.....	13,400	.....
Tributaries to Willow Creek:—			
Riley Creek	.....	.....	2,500
Langford Creek	.....	.....	2,500
Nelson Creek	.....	.....	5,000
Chaffin Creek	.....	.....	5,000
Westrup Creek	.....	.....	5,000
South Fork Willow Creek	.....	.....	20,000
Burke Creek	.....	.....	20,000
Trout Creek	.....	25,000	.....
Patterson Creek	.....	5,000	.....
Burton Creek	.....	10,000	.....
Lyndon Creek (sec. 15, t. 13, r. 1, w5m)*	.....	5,000	.....
Lyndon Creek (sec. 23, t. 12, r. 29, w4m)*	.....	5,000	.....
Lyndon Creek (sec. 26, t. 12, r. 29, w4m)*	.....	5,000	.....
Lyndon Creek (sec. 7, t. 13, r. 29, w4m)*	.....	10,000	.....
North Fork Willow Creek	.....	15,000	.....
Johnson Creek	.....	10,000	.....
Tributaries to Waterton River:—			
Pine Creek	.....	10,000	.....
Cottonwood Creek	20,000	.....	.....
Trail Creek	5,000	.....	5,000
Smith Creek	.....	5,000	10,000
Yarrow Creek	.....	.....	8,000
Drywood Creek	.....	15,000	.....
Carpenter Creek	.....	10,000	.....
Spring Creek	.....	10,000	.....
Tributaries to Oldman River:—			
Pincher Creek	.....	30,000	.....
Unnamed Waters (sec. 16, t. 7, r. 2, w5m)*	500	.....	.....
Unnamed Waters (sec. 15, t. 4, r. 30, w5m)*	500	.....	.....
Lee Lake	.....	.....	5,000
TOTAL	26,000	338,900	193,000

WATERTON

CUTTHROAT TROUT

Name of Waters	Fry	Advanced Fry	Fingerlings No. 1
Tributaries to St. Mary's River:—			
Tough Creek	.....	.....	12,500
Lee Creek	.....	.....	12,000
Tributaries to Oldman River:—			
Racehorse Creek	.....	.....	30,000
Station Creek	.....	5,000	10,000
Beaver Dams (sec. 8, t. 11, r. 3, w5m)*	.....	.....	40,000
Ernst Creek	.....	5,000	.....
Beaver Dams (sec. 32, 33, t. 10, r. 3, w5m)*	.....	25,000	.....
Playle Creek	.....	5,000	.....
Callum Creek	.....	10,000	.....
Adair Creek	.....	5,000	.....
Burton Creek (sec. 1, t. 12, r. 2, w5m)*	.....	5,000	.....
Damon Creek	.....	5,000	.....
Sharples Creek	.....	5,000	.....
Spring Creek	.....	5,000	.....
Bobs Creek	.....	15,000	.....
Olin Creek	.....	5,000	.....
Heath Creek	.....	10,000	.....
Beaver Creek (sec. 5, t. 10, r. 30, sec. 1, t. 10, r. 30, sec. 18, t. 9, r. 30, sec. 30, t. 9, r. 30, w4m)*	.....	30,000	.....
Unnamed Waters (sec. 15, t. 4, r. 30, w4m)*	500	.....	.....
Tributaries to Livingstone River:—			
Unnamed Creek (sec. 36, t. 12, r. 4, w5m)*	.....	.....	5,000
Twin Creek	.....	.....	10,000
Coat Creek	.....	.....	10,000
Bovin Lake (sec. 19, t. 3, r. 1, w5m)*	.....	.....	5,000
No Outlet	.....	.....	.....
TOTAL	500	135,000	134,500

BANFF

RAINBOW TROUT

Name of Waters	Fry	Fingerlings No. 1	Fingerlings No. 2
Tributaries to Milk River:—			
Battle Creek	.....	20,000	.....
Greyburn Creek	.....	10,000	.....
Tributaries to Bow River:—			
Bear Creek	.....	20,000	.....
Sibbald Creek	.....	20,000	.....
Spring Creek	.....	12,630	.....
Tributaries to Sheep Creek:—			
Blue Rock Creek	.....	.....	10,000
Canyon Creek	.....	.....	10,000
Fisher Creek	.....	.....	20,000
Gorge Creek	.....	.....	10,000
Junction Creek	.....	.....	20,000
King Creek	.....	.....	5,000
North Sheep Creek	.....	.....	15,000
South Sheep Creek	.....	.....	20,000
Spring Creek	.....	.....	10,000
Ware Creek	.....	.....	10,000
Tributaries to Elbow River:—			
Bragg Creek	.....	19,355	.....
Lotts Creek	.....	.....	15,900
Mays Creek	.....	.....	15,900
Mickle Creek	.....	10,000	.....
Pirmez Creek	.....	19,355	.....
Pirmez Creek	.....	.....	10,600
Rennick Creek	.....	10,000	.....
Robinson Creek	.....	.....	10,600
Stringer Creek	.....	10,000	.....
Young Creek No. 1	.....	5,000	.....
Tributaries to Highwood River:—			
Cataract Creek	.....	.....	30,000
Etherington Creek	.....	.....	30,000
Pekisko Creek	.....	.....	30,000
Sennet Creek	.....	.....	10,000
Tributary to Oldman River:—			
North Willow Creek	.....	.....	20,000
TOTAL	.....	146,340	303,000

BANFF

CUTTHROAT TROUT

Name of Waters	Fry	Fingerlings No. 1	Fingerlings No. 2
Tributaries to Bow River:—			
Big Hill Creek	.....	.....	30,000
Bowfort Creek	.....	10,000	.....
Cold Creek	.....	25,000	.....
Exshaw Lakes	.....	30,000	.....
Gap Creek	.....	10,000	.....
Ghost Lake	.....	.....	30,000
Jumping Pound Creek	.....	.....	10,425
Muskeg Creek	.....	.....	10,000
Policeman's Creek	.....	20,000	.....
Spencer Creek	.....	10,000	.....
Tributaries to Elbow River:—			
Crawford Creek	.....	5,000	.....
Fullerton Creek	.....	5,000	.....
Hidden Creek	.....	.....	10,000
McLean Creek	.....	.....	10,000
Prairie Creek	.....	.....	20,000
Ranger Creek	.....	.....	10,000
Sylvester Creek	.....	.....	20,000
Thomas Creek	.....	.....	10,000
Young Creek No. 2	.....	5,000	.....
Tributaries to Ghost River:—			
Eau Clair Creek	.....	30,000	.....
Haymeadow Creek	.....	.....	30,000
Tributaries to Highwood River:—			
Flat Creek	.....	30,000	.....
Sullivan Creek	.....	30,000	.....
TOTAL	.....	210,000	190,425

BANFF

LOCH LEVEN TROUT

Name of Waters	Advanced Fry	Fingerlings No. 1	Fingerlings No. 2
Tributaries to Clearwater River:—			
Alford Creek	.....	10,000	.....
Clear Creek	.....	10,000	.....
Cold Creek	.....	10,000	.....
Moose Creek	.....	10,000	.....
Muskeg Creek	.....	10,000	.....
South Prairie Creek	.....	10,000	.....
Suhr Creek	.....	5,000	.....
North Prairie Creek	.....	10,000	.....
Tributaries to Red Deer River:—			
Bear Creek	.....	5,000	.....
Bearberry Creek	.....	20,000	.....
Beaver Creek	.....	10,000	.....
Chapman's Spring	.....	10,000	.....
Dennison Creek	.....	5,000	.....
Dog Pound Creek	15,000	.....	.....
East Stony Creek	.....	20,000	.....
Gastle Creek	.....	2,500	.....
Gibson Creek	.....	5,000	.....
Grant Creek	.....	2,500	.....
Griswald Creek	.....	5,000	.....
Horseshoe Lake No. 1	.....	5,000	.....
Horesshoe Lake No. 2	.....	5,000	.....
Little Beaver Creek	.....	5,000	.....
Little Red Deer River	.....	19,200	.....
South Raven Creek	.....	20,000	.....
Spring Creek	.....	15,000	.....
Stever Creek	.....	12,500	.....
Twin Spring	.....	5,000	.....
Waltermeyer Creek	.....	2,500	.....
Wammick Lake No. 1	.....	5,000	.....
Wammick Lake No. 2	.....	5,000	.....
Wammick Lake No. 3	.....	5,000	.....
Wammick Lake No. 4	.....	2,500	.....
Wammick Lake No. 5	.....	2,500	.....
Swanson Creek	5,000	.....	.....
Birch Lake (sec. 18, t. 35, r. 6, w5m)*	.....	.....	.....
No Outlet	.....	20,000	.....
Tributaries to Baptiste River:—			
Chambers Creek	.....	20,000	.....
Lawrence Creek	.....	12,000	.....
Ruth Creek	.....	12,000	.....

	Advanced Fry	Fingerlings No. 1	Fingerlings No. 2
Tributaries to North Saskatchewan River:—			
Fish Lake	.....	10,000	.....
Goldeye Lake	.....	30,000	.....
Wabamun Lake	40,000	.....	.....
Tributary to Battle River:—			
Pigeon Lake	40,000	.....	.....
TOTAL	100,000	373,200	.....

BANFF

SPECKLED TROUT

Name of Waters	Advanced Fry	Fingerlings No. 1	Fingerlings No. 2
Tributaries to Red Deer River:—			
South Raven Creek	.....	6,000	.....
Cold Lake	85,000	.....	.....
TOTAL	85,000	6,000	.....

JASPER

RAINBOW TROUT

Name of Waters	Advanced Fry	Fingerlings No. 1	Fingerlings No. 2
Sansell Lake (s.w. ¼ sec. 8, t. 53, r. 19, w5m), no outlet	10,000	.....	.....
Tributaries to McLeod River:—			
Howey Creek	5,000	.....	.....
Obed Lake	15,000	.....	.....
North Branch Edson River	20,000	.....	.....
Bench Creek	10,000	.....	.....
Little Wolf Creek	10,000	.....	.....
Carrot Creek	10,000	.....	.....
Tributaries to Sundance River:—			
Horse Creek	10,000	.....	.....
Little Hornbeck	15,000	.....	.....
Tributary to Lobstick River:—			
Brule Creek	5,000	.....	.....
Deacon Lake (sec. 9, t. 53, r. 15, w5m), no outlet	10,000	.....	.....
TOTAL	120,000	.....	.....

RECAPITULATION

Hatchery	Fry	Advanced Fry	Fingerlings No. 1	Fingerlings No. 2
Waterton	26,500	473,900	327,500	.....
Banff	.....	185,000	735,540	493,425
Jasper	.....	120,000	.....	.....
TOTALS	26,500	778,900	1,063,040	493,425

Fry	26,500
Advanced Fry	778,900
Fingerlings No. 1	1,063,040
Fingerlings No. 2	493,425
Total distribution from the three hatcheries for the fiscal year ended March 31st, 1935	2,361,865

*Sec.—section, t.—township, r.—range, w4m—west of the 4th meridian.

In order to be assured of a supply of trout for distribution for the 1935 season, arrangements were again made during the month of October for a supply of eggs for next season's stocking. Instead of making these arrangements through the Department of Fisheries, this Department made arrangements for the purchase of the eggs direct with the dealers. The following are the numbers arranged for in October for delivery at the various hatcheries:—

Hatchery	Number	Species
Waterton	900,000	Rainbow trout eyed eggs
Waterton	400,000	Cutthroat trout eyed eggs
Banff	600,000	Speckled trout eyed eggs
Banff	550,000	Rainbow trout eyed eggs
Banff	475,000	Cutthroat trout eyed eggs
Jasper	200,000	Rainbow trout eyed eggs
TOTAL	3,125,000	

The speckled trout eggs were ordered for delivery at the Banff hatchery in January and the rainbow and cutthroat eggs for May and June at the three hatcheries mentioned.

Lesser Slave Lake Hatchery.—The Lesser Slave Lake hatchery, owing to economic reasons, was not operated during the year. Some repairs, however, were carried out during the summer and new steel girders installed over the engine room to replace timbers which by warping had allowed the upper floors to sag. Permanent marine ways were also made to enable motor boats to be launched, or drawn out for the winter, without difficulty or damage. Considerable tree planting was carried out and the grounds improved generally, as well as a year's supply of cordwood obtained for fuel for the boilers in order to be in readiness should it be decided on short notice to again put the hatchery in operation. For the same reason all machinery and equipment were kept in first class condition. With the exception of rubber boots and waterproof clothing very little supplies or equipment would be required to place the hatchery in operation.

In addition to the re-stocking carried on from the various trout hatcheries, the following waters were examined with a view to stocking should they be found suitable for fish life:—

Name of Lake	Location
Hoselaw Lake	Sec. 23, t. 59, r. 7, w4m.
Lake No. 2	S.E. ¼ sec. 6, t. 46, r. 3, w5m.
Bittern Lake	T. 46 and 47, r. 21 and 22, w4m.
Looking Back Lake	T. 50, r. 22, w4m.
Laurier Lake	Secs. 21 and 22, t. 56, r. 4, w4m.
Coal Lake	T. 47 and 48, r. 23, w4m.
Conjuring Lake	T. 48, r. 27, w4m.
Lake No. 1	Sec. 6, t. 48, r. 8, w4m.
Two unnamed lakes	Sec. 8 and 16, t. 19, r. 14, w4m.
Taylor's Pond	S.E. ¼ sec. 7, t. 27, r. 2, w5m.
Dyck's Pond	N.W. ¼ sec. 31, t. 21, r. 15, w4m.
Sterling Lake	Sec. 2, t. 54, r. 1, w5m.
Lake Charron	T. 67 and 68, r. 17, w4m.
Reumiller Lake	Sec. 8, t. 26, r. 26, w4m.

Of these lakes examined seven were found to be unsuitable for any species of fish and three were found to already contain pike but were suitable for other species. Five, while not containing any fish, were found to be suitable for stocking.

During the season in addition to these inspections the following lakes were stocked with perch, pickerel and pike by transfer from other lakes:—

Name of Lake	Location
Sterling Lake	Sec. 2, t. 54, r. 1, w5m.
Reid Lake	Sec. 12, t. 54, r. 1, w5m.
Glory Lake	Sec. 22, t. 53, r. 1, w5m.
Astotin Lake	T. 54, r. 20, w4m.
Altheim Lake	Sec. 13, t. 52, r. 2, w5m.
Cardinal Lake	T. 83, r. 24, w5m.
Cappier Lake	Sec. 30, t. 38, r. 5, w4m.
Hales Lake	Sec. 3 and 10, t. 38, r. 6, w4m.
Lake Saskatoon	T. 72, r. 7 and 8, w6m.
Brightbank Lake	Sec. 23, t. 51, r. 2, w5m.
Nakamun Lake	T. 56, r. 2, w5m.
Lake Mere	Sec. 32, t. 53, r. 1, w5m.
Armstead Lake	Sec. 13, t. 53, r. 2, w5m.
McArthur Lake	Sec. 20, t. 53, r. 6, w5m.
Arnault Lake	Sec. 31, t. 54, r. 6, w5m.
Camp Lake	Sec. 10 and 15, t. 48, r. 11, w4m.
Lake No. 10	Sec. 27 and 28, t. 52, r. 2, w5m.
Richmond Lake	Sec. 31, t. 58, r. 4, w5m.
Lake "C"	Sec. 14, t. 60, r. 5, w5m.
Buffalo Lake	T. 40 and 41, r. 20 and 21, w4m.
Little Island Lake	Sec. 8, t. 55, r. 5, w5m.
Mink Lake	T. 52, r. 2 and 3, w5m.
Crimson Lake	Sec. 24, t. 40, r. 8, w5m.
Hondo Lake	Sec. 13, t. 70, r. 1, w5m.
Conjuring Lake	T. 48, r. 7, w4m.
Cutbank Lake	Sec. 26, t. 72, r. 8, w6m.
Lake No. 2	S.E. ¼ sec. 6, t. 46, r. 3, w5m.

It is most gratifying to be able to report that the re-stocking of streams and the introduction of new species of trout into the waters of Alberta together with the transfer of perch into barren waters, or waters not previously containing this species, is showing greater evidence of success. The benefits that have already been and will continue to be obtained are most satisfactory. The introduction of Loch Leven trout into the tributaries of the Red Deer and the North Saskatchewan has proven very successful and many reports are now being received of excellent specimens being take in many of the streams and tributaries of these rivers. Most encouraging reports are also being received on the success of the introduction of rainbow trout into the streams in southern Alberta. This species continues to give the angler excellent sport.

Fishing at The Falls, north fork of the Oldman River, Southern Alberta

Falls, Bighill Creek, north of Cochrane

BIRD SANCTUARIES AND PUBLIC SHOOTING GROUNDS

No difficulties were experienced during the year in the enforcement of regulations governing bird sanctuaries and public shooting grounds and no infractions of these regulations were reported. The general public, apparently realizing the value of such areas, are most ready to co-operate.

Owing to the continued drought for several seasons the value of some of the sanctuaries has been greatly decreased. As the water areas in some of them and in several of the public shooting grounds have gone completely dry, they are of little or no value for water fowl at the present time. Efforts are being made to locate more suitable areas for sanctuaries in lieu of those which are in this condition. In order to combat the weed menace in these dried out areas it will be necessary to either dispose of the lands altogether or make some arrangement for cropping or grazing until such time as wet seasons restore the lakes to their former condition.

REGULATIONS APPERTAINING TO PLEASURE BOATS

Regulations appertaining to pleasure boats were enforced this year for the first time in the province. The fishery inspectors during the season made inspections and approved life saving devices and safety appliances on the 33 boats licensed for the purpose of carrying passengers. The system of inspection met the approval of the general public and co-operation of the operators was received in most cases without question, making it apparent that the carrying out of this measure was satisfactory to all concerned.

In order that the nuisance of open mufflers on motor boats be abated at the pleasure resorts, regulations were also effected for their control. Signalling equipment, safety fire appliances and proper life belts were required to be carried on boats and numbers of passengers were limited according to size of craft.

ITEMIZED REVENUE OBTAINED DURING FISCAL YEAR, 1934-35

Month	Fishermen's Licenses	Domestic Licenses	Commercial Licenses	Boat Licenses	Angling Permits	Sales	Sundry	Total
April	.....	.....	.....	.....	$ 8.00	$ 1.00	$ 16.66	$ 25.66
May	$1,040.00	$ 242.00	$ 160.00	$ 10.00	102.25	66.35	16.66	1,637.26
June	65.00	142.00	10.00	70.00	2,817.25	36.48	16.66	3,157.39
July	135.00	72.00	100.00	95.00	3,028.75	1.20	18.33	3,450.28
August	355.00	64.00	90.00	25.00	1,802.75	5.00	16.66	2,358.41
September	155.00	32.00	10.00	.....	873.75	77.02	16.66	1,164.43
October	45.00	14.00	.....	.....	1,118.00	1.70	16.66	1,195.36
November	305.00	14.00	.....	.....	345.50	76.10	16.66	757.26
December	1,020.00	464.00	20.00	.....	2.00	46.40	16.66	1,569.06
January	2,640.00	136.00	.....	.....	.....	12.26	16.66	2,804.92
February	265.00	106.00	10.00	.....	.....	79.50	72.49	532.99
March	255.00	10.00	.....	.....	.....	13.00	16.74	294.74
	$6,280.00	$1,296.00	$ 400.00	$ 200.00	$10,098.25	$ 416.01	$ 257.50	$18,947.76

Accounting Division

REPORT OF THE CHIEF ACCOUNTANT, I. N. McKINNON

A surplus of $646,528.97 on income account was shown for the fiscal year ending March 31, 1935, an increase of $171,840.78 over the previous year.

Revenue for the year was $1,169,496.15, an increase of $232,400.35. Expenditure was $522,967.18, an increase of $60,559.57.

Total cash received from all sources amounted to $1,337,394.04, particulars of which are given in statements "A" and "B".

Land Patents Branch

Homestead Entries.—Homestead entries granted were 2,780, covering approximately 444,800 acres. Details will be found in Statement "N".

Land Sales.—Collections on principal and interest were $9,780.68 and $3,379.76 respectively, an increase in principal of $1,785.15 and a decrease in interest of $1,455.13 from the previous year.

Details of collections for this branch are given under Statement "D".

Timber and Grazing Branch

Timber.—Receipts from timber operations amounted to $201,484.60, an increase of $70,955.46 over the previous year. This is mainly accounted for by a big increase in the number of railway ties cut. Full particulars of all timber cut on provincial lands will be found in the report of the Director of Forestry.

Grazing.—Receipts from grazing leases and permits were $43,345.35, an increase of $3,382.26 over the previous year. Leases in force number 3,380, covering an acreage of 3,078,446 acres.

Details of collections for this branch will be found under Statement "E".

Mining Lands Branch

Coal.—Rentals and fees on leases amounted to $129,260.84, an increase of $7,297.94. Royalties collected on coal mined on leases and sales were $174,538.69, a decrease of $17,688.85 from the previous year. It should be noted, however, that the figure for the previous year included royalty on an extra two months production due to a change in the system of royalty collections.

Coal produced subject to royalty on leases and sales totalled 2,934,338 tons, as against 2,703,736 for the previous year. Leases in force were 460, covering an area of 126,246.2 acres.

Petroleum and Natural Gas.—Collections of lease rentals, fees, etc., were $104,124.25, an increase of $22,585.73 over the previous year. Royalty collected was $61,265.88, a decrease of $12,282.39. Particulars of oil production will be found in the report of the Director of Petroleum and Natural Gas.

Leases in force numbered 3,344, covering an acreage of 785,656.7 acres.

Details of revenue collected by this branch are given in statement "F".

School Lands Branch

Sales.—No sales of school lands at public auction were held during the past fiscal year.

Collections of both principal and interest showed substantial increases, partly due, however, to the inclusion in this year's revenue, of proceeds from sale of the 1933 crop, which many farmers were unable to haul before March 31, 1934. Another reason for the increase may be ascribed to the action of the Department in taking on extra inspectors and collectors for a period of 3½ months in the Fall to make a survey of all sales and enforce collections where crop conditions warranted.

Principal collected was $80,132.43, an increase of $23,996.20. Interest amounted to $180,897.40, an increase of $90,125.15.

The bonus scheme whereby the Department credits an extra dollar for every dollar paid on current or arrears interest, is still in force.

The Alberta School Lands Trust Account as at March 31, 1935, amounted to $13,910,081.45, particulars of which will be found in statement "H".

Arrears interest on sales at March 31, 1935 was $1,333,378.58 as compared with $1,991,935.83 as at March 31, 1934, details of which are given in statement "I".

Cultivation and Grazing Permits.—Collections amounted to $74,993.35, an increase of $41,993.48 over the previous year, which was due, principally to an increase in the number of leases granted and also to the better prices received by the Department for its share of grain produced. Details will be found in statement "G".

Forestry Branch

Revenue collected from the various forest reserves amounted to $46,497.68, an increase of $3,053.87 over the previous year.

Details of receipts are given in statement "J".

Fisheries Branch

Collections amounted to $18,947.76 as compared with $15,071.61 for the previous year, an increase of $3,876.15.

Details of receipts will be found in statement "K".

The Mines Act Branch

Receipts for the year amounted to $6,538.64 as against $6,800.17 for the previous year.

Details of receipts are given in statement "L".

INDEX TO STATEMENTS

A.—Statement of Cash Receipts by Branches.
B.—Statement of Cash Receipts from all Sources.
C.—Statement of Cash Receipts by Agencies.
D.—Statement of Cash Receipts, Land Patents Branch.
E.—Statement of Cash Receipts, Timber and Grazing Branch.
F.—Statement of Cash Receipts, Mining Lands Branch.
G.—Statement of Cash Receipts, School Lands Branch.
H.—Statement of School Lands Trust Fund Balance Sheet.
I.—Statement of Alberta School Lands Sales Revenue Account.
J.—Statement of Cash Receipts, Forestry Branch.
K.—Statement of Cash Receipts, Fisheries Branch.
L.—Statement of Cash Receipts, Administration of The Mines Act Branch.
M.—Statement of Collections on Tax Recovery Lands.
N.—Statement of Homestead Entries Granted.

STATEMENT A.

STATEMENT OF CASH RECEIPTS BY BRANCHES

For Period April 1, 1934 to March 31, 1935

Land Patents Branch	$ 68,398.05
Timber and Grazing Branch	250,218.27
Mining Lands Branch	471,732.01
School Lands Branch	411,808.81
Forestry Branch	46,497.68
Fisheries Branch	18,947.76
Petroleum and Natural Gas Division	2,329.71
Administration of the Mines Act Branch	6,538.64
Administration Revenue (Miscellaneous Fees)	391.49
Tax Recovery Branch	12,520.36
Total Cash Receipts Allocated	$1,289,382.78
Unapplied receipts and monies subject to refund, carried forward from previous year	40,924.25
Suspense	7,087.01
TOTAL CASH RECEIPTS	$1,337,394.04

STATEMENT B.

STATEMENT OF CASH RECEIPTS FROM ALL SOURCES

From April 1, 1934 to March 31, 1935

INCOME ACCOUNT:	Gross Receipts	Refunds	Net Revenue
Homestead Fees	$ 27,840.00	$ 20.00	$ 27,820.00
Improvement Collection Fees	7,350.93	.....	7,350.93
Unclaimed Improvements	1,209.86	.....	1,209.86
Cancellation Fees	2,476.00	18.00	2,458.00
Filing Authority Fees	1,930.00	.....	1,930.00
General Sales Interest	3,379.76	.....	3,379.76
Cultivation Fees, Rentals, etc.	2,013.18	94.70	1,918.48
Surface Rentals	2,741.27	.....	2,741.27
Canmore Rental Account	644.92	.....	644.92
Land Patents Sundry	5,027.05	86.85	4,940.20
Fur Farm Fees and Rentals	225.00	50.00	175.00
Timber Permits, Fees, Dues, etc.	227,081.10	2,017.93	225,063.17
Grazing Fees, Rentals, etc.	58,184.07	3,406.51	54,777.56
Hay Permits, Fees, Dues, etc.	4,220.44	367.50	3,852.94
Timber and Grazing Miscellaneous	2,400.28	.....	2,400.28
Coal Mines Act Sundry Revenue	4,439.90	37.15	4,402.75
Coal Fees, Rentals, etc.	129,775.84	1,293.03	128,482.81
Coal Royalties	176,122.43	.....	176,122.43
Petroleum and Natural Gas Fees, Rentals, etc.	104,960.64	679.75	104,280.89
Petroleum and Natural Gas Royalties	61,265.88	.....	61,265.88
Petroleum and Natural Gas Drilling Permits	100.00	5.00	95.00
Quarrying Lease Fees and Rentals	1,213.38	7.00	1,206.38
Mining Lands Sundry Revenue	1,440.54	.....	1,440.54
Fishing Licenses	7,976.00	.....	7,976.00
Boat Licenses	200.00	.....	200.00
Angling Permits	11,164.75	.....	11,164.75
Fisheries Sundry Revenue	673.51	64.37	609.14
Administration Sundry Revenue	391.49	1.05	390.44
School Lands Sales Interest	180,897.40	391.82	180,505.58
School Lands Miscellaneous	157,341.10	10,059.32	147,281.78
Reimbursement of Salaries and Expenses	381.75	.....	381.75
Turner Valley Gas Conservation Board	900.00	34.13	865.87
Tax Recovery Office Fees	1,696.25	25.00	1,671.25
Services and Supplies	490.54	.....	490.54
TOTAL INCOME ACCOUNT	$1,188,155.26	$ 18,659.11	$1,169,496.15
CAPITAL ACCOUNT:			
Land Sales, Principal	9,780.68	15.48	9,765.20
TOTAL INCOME AND CAPITAL ACCOUNTS	$1,197,935.94	$ 18,674.59	$1,179,261.35
UNAPPLIED RECEIPTS CARRIED FORWARD: (Subject to Refund)			
Improvements	21,242.97	7,770.48	13,472.49
Suspense	16,544.34	.....	16,544.34
School Lands Cultivation Crop Shares	10,000.00	.....	10,000.00
Land Patents Cultivation Crop Shares	300.00	.....	300.00
	$1,246,023.25	$ 26,445.07	$1,219,578.18
TRUST ACCOUNTS:			
School Lands Trust Fund	80,132.43		
Homesteaders' Trust Monies	414.25		
Tax Recovery Lands Trust Account	10,824.11		
TOTAL CASH RECEIPTS	$1,337,394.04		

STATEMENT C.

STATEMENT OF CASH RECEIPTS BY AGENCIES

April 1, 1934 to March 31, 1935

	Land Patents Branch	Timber and Grazing Branch	Mining Lands Branch	School Lands Branch	Tax Recovery Branch	Total
Edmonton	$ 35,171.04	$184,286.58	$130,210.11	$187,832.39	$ 656.02	$ 538,156.14
Calgary	9,880.39	30,355.45	250,478.06	127,978.75	822.97	419,515.62
Lethbridge	9,524.35	26,498.19	90,344.01	59,242.94	10,892.18	196,501.67
Peace River	13,822.27	9,078.05	699.83	36,754.73	149.19	60,504.07
	$ 68,398.05	$250,218.27	$471,732.01	$411,808.81	$ 12,520.36	$1,214,677.50

N.B.—Moneys which were paid direct to Administration Office have been allocated to the Agency concerned.

STATEMENT D.

LAND PATENTS BRANCH
STATEMENT OF CASH RECEIPTS

April 1, 1934 to March 31, 1935

	Edmonton	Calgary	Lethbridge	Peace River	Total
Homestead Fees	$17,310.00	$ 3,370.00	$ 1,160.00	$ 6,000.00	$27,840.00
Improvements	7,342.52	409.50	2,275.00	5,350.34	15,377.36
Cancellation Fees	1,696.00	126.00	22.00	632.00	2,476.00
Filing Authority Fees	1,028.00	256.00	158.00	488.00	1,930.00
General Sales: Principal	4,269.61	2,592.91	2,406.51	511.65	9,780.68
General Sales: Interest	1,450.06	109.17	1,216.95	603.58	3,379.76
Cultivation Fees, Rentals, etc.	73.52	583.72	1,177.54	.....	1,834.78
Surface Rentals	1.00	238.38	125.70	.....	365.08
Canmore Rental Account	.....	644.92	.....	.....	644.92
Land Patents Miscellaneous	1,431.55	1,549.79	962.18	186.70	4,130.22
Homesteaders' Trust Monies	393.78	.....	20.47	.....	414.25
Fur Farm Fees and Rentals	175.00	.....	.....	50.00	225.00
	$35,171.04	$ 9,880.39	$ 9,524.35	$13,822.27	$68,398.05

N.B.—Moneys which were paid direct to Administration Office have been allocated to the Agency concerned.

STATEMENT E.

TIMBER AND GRAZING BRANCH
STATEMENT OF CASH RECEIPTS

April 1, 1934 to March 31, 1935

	Edmonton	Calgary	Lethbridge	Peace River	Total
Timber: Fees, Dues, Royalty, etc.	$177,895.19	$16,518.35	$ 30.75	$ 7,040.31	$201,484.60
Grazing: Fees, Rentals, etc.	2,858.18	12,734.41	26,461.94	1,290.82	43,345.35
Hay: Fees, Dues, etc.	2,337.19	851.03	5.50	746.92	3,940.64
Timber and Grazing Miscellaneous	1,196.02	251.66	.....	.....	1,447.68
	$184,286.58	$30,355.45	$26,498.19	$ 9,078.05	$250,218.27

N.B.—Moneys which were paid direct to Administration Office have been allocated to the Agency concerned.

STATEMENT F.

MINING LANDS BRANCH
STATEMENT OF CASH RECEIPTS

April 1, 1934 to March 31, 1935

	Edmonton	Calgary	Lethbridge	Peace River	Total
Coal Fees, Rentals, etc.	$ 59,503.48	$ 55,705.16	$13,728.18	$ 324.02	$129,260.84
Coal Royalty	56,161.78	65,856.30	52,339.76	180.85	174,538.69
Petroleum and Natural Gas: Fees, Rentals, etc.	12,873.19	68,684.88	22,511.18	55.00	104,124.25
Petroleum and Natural Gas: Royalties	482.42	59,319.34	1,464.12	.....	61,265.88
Quarrying Fees, Rentals, etc.	357.99	686.88	48.55	119.96	1,213.38
Mining Lands Miscellaneous	831.25	225.50	252.22	20.00	1,328.97
	$130,210.11	$250,478.06	$90,344.01	$ 699.83	$471,732.01

N.B.—Moneys which were paid direct to Administration Office have been allocated to the Agency concerned.

STATEMENT G.

SCHOOL LANDS BRANCH

STATEMENT OF CASH RECEIPTS

April 1, 1934 to March 31, 1935

	Edmonton	Calgary	Lethbridge	Peace River	Total
Sales: Principal	$ 40,596.35	$ 25,655.10	$ 7,695.74	$ 6,185.24	$ 80,132.43
Sales: Interest	88,504.25	49,791.73	21,853.92	20,747.50	180,897.40
Cultivation Fees, Rentals, etc.	37,244.91	24,189.00	5,827.29	7,732.15	74,993.35
License of Occupation and Special Leases	38.12	73.80	34.51	15.00	161.43
Timber Permits, Fees, Dues, etc.	11,529.49	921.91	8.00	340.66	12,800.06
Grazing Fees, Rentals, etc.	6,809.58	10,983.78	10,298.10	1,518.81	29,610.27
Hay Fees, Dues, etc.	811.84	245.10	4.25	225.37	1,286.56
Coal Fees, Rentals, etc.	84.00Dr.	3,220.92	2,174.00	.....	5,310.92
Coal Mining Royalties	.....	3,606.02	8,759.37	.....	12,365.39
Petroleum and Natural Gas: Fees, Rentals, etc.	2,126.40	9,068.07	2,486.26	.....	13,680.73
Petroleum and Natural Gas: Royalties	141.25	141.83	.....	.....	283.08
Miscellaneous	114.20	81.49	101.50	10.00 Dr.	287.19
	$187,832.39	$127,978.75	$59,242.94	$36,754.73	$411,808.81

N.B.—Moneys which were paid direct to Administration Office have been allocated to the Agency concerned.

STATEMENT H.

ALBERTA SCHOOL LANDS TRUST FUND

BALANCE SHEET—MARCH 31, 1935

ASSETS

Cash in Bank and on Hand		$ 20,190.05	
Investments:			
Dominion of Canada Debentures		9,798,035.45	
Accounts Receivable:			
Provincial Treasurer Income Account	$ 14,779.39		
Undue Principal	2,383,728.42		
Arrears Principal	1,693,357.18		
		4,091,864.99	
			$13,910,090.49

LIABILITIES

Alberta School Lands Trust Account	$13,910,081.45	
Suspense	9.04	
		$13,910,090.49

STATEMENT I.

ALBERTA SCHOOL LANDS SALES

REVENUE ACCOUNT

For the Period April 1, 1934 to March 31, 1935

Arrears Interest as at March 31, 1934	$1,991,935.83	
Interest charged	436,636.79	
Previous Year Refunds	58.05	
Revenue Collections		$ 180,505.58
Interest Bonus granted		173,716.66
Interest on Cancelled Sales written off		741,029.85
Arrears Interest as at March 31, 1935		1,333,378.58
	$2,428,630.67	$2,428,630.67

STATEMENT J.

FORESTRY SERVICE

STATEMENT OF CASH RECEIPTS FROM FOREST RESERVES

April 1, 1934 to March 31, 1935

LAND PATENTS BRANCH:	
Surface Rentals	$ 2,376.19
Miscellaneous Use Permits	896.83
TIMBER AND GRAZING BRANCH:	
Timber Fees, Dues, etc.	25,596.50
Grazing Fees, Rentals, etc.	14,838.72
Hay Fees, Dues, etc.	279.80
Timber and Grazing Miscellaneous	952.60
MISCELLANEOUS:	
Services and Supplies	490.54
FISHERIES BRANCH:	
Angling Permits	1,066.50
	$46,497.68

STATEMENT K.

FISHERIES BRANCH
STATEMENT OF CASH RECEIPTS
April 1, 1934 to March 31, 1935

Angling Permits	$10,098.25
Fishing Licenses	7,976.00
Boat Licenses	200.00
Miscellaneous	673.51
	$18,947.76

STATEMENT L.

ADMINISTRATION OF THE MINES ACT BRANCH
STATEMENT OF CASH RECEIPTS
April 1, 1934 to March 31, 1935

Certificate Fees	$ 1,141.65
Sale of Report Books	1,042.75
Coal Sales Act, Registration Fees	32.00
Coal Leases (Road Allowance) Rental	515.00
Coal Leases (Road Allowance) Royalty	1,583.74
Examination Fees	969.00
Miscellaneous	1,254.50
	$ 6,538.64

STATEMENT M.

STATEMENT OF COLLECTIONS ON TAX RECOVERY LANDS
April 1, 1934 to March 31, 1935

Improvements	$ 732.00
Cultivation Permits	239.10
Cultivation Rentals, etc.	559.47
Cultivation Crop Shares	3,365.66
Miscellaneous Rentals	215.09
Grazing Permits	2,835.32
Grazing Rentals, etc.	1,914.20
Timber Permits	76.68
Hay Permits	28.50
Sales, Principal	858.09
	$10,824.11
Office Fees	1,696.25
	$12,520.36

STATEMENT N.

HOMESTEAD ENTRIES GRANTED
April 1, 1934 to March 31, 1935

	Homesteads	Second Homesteads	Soldier Grants	Total	Entries to Women
Edmonton Land Agency	1,536	177	18	1,731	473
Calgary Land Agency	266	67	4	337	87
Lethbridge Land Agency	61	52	3	116	31
Peace River Land Agency	562	29	5	596	244
	2,425	325	30	2,780	835

ANNUAL REPORT

OF THE

Department of Lands and Mines

OF THE

PROVINCE OF ALBERTA

FOR THE

Fiscal Year Ended March 31st 1936

PUBLISHED BY ORDER OF THE LEGISLATIVE ASSEMBLY

EDMONTON:
PRINTED BY A. SHNITKA, KING'S PRINTER
1937

To the Honourable J. C. Bowen,
Lieutenant-Governor of the Province of Alberta.

SIR:

I have the honour to submit the report of the Department of Lands and Mines for the fiscal year ended March 31st, 1936.

I have the honour to be, Sir,

Your obedient servant,

N. E. TANNER,
Minister of Lands and Mines.

EDMONTON, April 6th, 1937.

TABLE OF CONTENTS

PAGE

REPORT OF THE DEPUTY MINISTER 9

I.—PROVINCIAL LANDS ADMINISTRATION

Report of the Provincial Lands Division 26

Report of the Grazing Branch 28

II.—SCHOOL LANDS ADMINISTRATION

Report of the School Lands Division 31

III.—MINING LANDS ADMINISTRATION

Report of the Mining Lands Division 33

IV.—TECHNICAL DIVISION

Report of the Technical Division 37

V.—PETROLEUM AND NATURAL GAS ADMINISTRATION

Report of the Petroleum and Natural Gas Division 41

VI.—FORESTRY ADMINISTRATION

Report of the Forestry Division 49

VII.—FISHERIES ADMINISTRATION

Report of the Fisheries Division 73

VIII.—ACCOUNTS ADMINISTRATION

Report of the Accounting Division 93

CHIEF OFFICERS
DEPARTMENT OF LANDS AND MINES
March 31st, 1936

Honourable Charles C. Ross	*Minister of Lands and Mines*
John Harvie	*Deputy Minister of Lands and Mines*
T. C. Rankine	*Departmental Solicitor*
D. H. Boles	*Director of Lands*
G. A. Forster	*Supervisor of Grazing*
J. W. Stafford	*Superintendent of School Lands*
J. W. Hamilton	*Superintendent of Mining Lands*
T. W. Dalkin	*Superintendent of the Technical Division*
C. W. Dingman	*Director of Petroleum and Natural Gas*
T. F. Blefgen	*Director of Forestry*
J. A. Hutchison	*Assistant Director of Forestry*
F. W. Neilson	*Chief Timber Inspector*
R. T. Rodd	*Director of Fisheries*
I. N. McKinnon	*Accountant*
R. J. Dean	*Inspector of Revenue*
A. A. Millar	*Chief Inspector, The Coal-mines Regulation Act*
M. Gossip	*Agent, Calgary Land Agency*
R. Cruickshank	*Agent, Lethbridge Land Agency*
J. J. E. Clarke	*Agent, Peace River Land Agency*
J. L. Irwin	*Statistician*

REPORT

OF THE

Department of Lands and Mines,

1935-36

Honourable N. E. Tanner,
Minister of Lands and Mines,
Edmonton.

SIR:

I have the honour to submit the sixth Annual Report of the Department of Lands and Mines for the fiscal year ended March 31st, 1936.

REORGANIZATION OF THE DEPARTMENT

At the opening of the fiscal year under review a reorganization of the Department with a view to securing greater efficiency was put into effect. Changes which were made included the creation of a School Lands Division, a Mining Lands Division and the elimination of the Edmonton Land Agency.

School Lands Division.—The School Lands Division is responsible for the administration of all lands of the School Endowment in accordance with the provisions of the Provincial Lands Act and regulations as established by the Lieutenant-Governor in Council under authority of the said Act.

Administration of the new Division deals with the maintenance of complete index and filing systems, authentic records, applications for surface rights, enforcement of payments owing on land purchases, leases, etc., and the collection of crop shares on cultivation leases together with the marketing of grain paid on a crop share basis.

Mining Lands Division.—Functions of this new Division include the disposition of mineral rights in provincial and school lands under authority of the Provincial Lands Act and regulations as promulgated by the Lieutenant-Governor in Council.

Administration deals with applications for mining rights, issuance of leases, registration of assignments and cancellation of rights.

All business relative to credits and royalties, combined with the duties of Mining Recorder for the Edmonton District, are also responsibilities of the Division.

Abolition of the Edmonton Land Agency.—In the general process of reorganization the abolition of the Edmonton Land Agency became obvious for the purpose of eliminating duplication of records.

The closing of this Agency took effect therefore at the beginning of the year and the area of the Edmonton Land District with all the business accustomed to be transacted therein came under the control of the various Divisions of the Department to which they were applicable.

Three Royal Commissions

During the period of this Report three Royal Commissions were held which bore a direct relationship to the activities of this Department.

The first, the Report of which was presented in December, 1935, was an investigation respecting the coal industry of the Province of Alberta. The Rt. Hon. Sir Montague Barlow, Bart., P.C., K.B.E., LL.D., was appointed as Commissioner for this Enquiry.

The second, reported on February 15th, 1936, was held for the purpose of investigating conditions of the Metis population of this Province. Commissioners sitting on this Enquiry were the Hon. A. F. Ewing, Judge of the Supreme Court of Alberta, J. M. Douglas, Stipendiary Magistrate for the Northwest Territories, and Dr. E. A. Braithwaite, Coroner and Inspector of Hospitals, Department of Public Health. T. C. Rankine, Departmental Solicitor, Department of Lands and Mines, was appointed Secretary to the Commission.

The third, under the Commissionership of the Hon. H. W. Lunney, Judge of the Supreme Court of Alberta, was carried out with a view to conducting an Enquiry into the Coalhurst mining disaster which occurred on December 9th, 1935. The Report of this Enquiry is dated April 14th, 1936, two weeks after the close of the fiscal year. The disaster, however, having taken place within the period under departmental review and the investigation as to cause being under way at the close of the fiscal year, the Report of this Commission is included as a section of this Annual Report of the Department.

A résumé of the three Royal Commissions follows.

Report of the Royal Commission Respecting the Coal Industry of the Province of Alberta, 1935

Commissioner

Rt. Hon. Sir Montague Barlow, Bart., P.C., K.B.E., LL.D.

This Report, presented by the Rt. Hon. Sir Montague Barlow, Bart, P.C., K.B.E., LL.D., Commissioner presiding at the Enquiry, covers in considerable detail an investigation carried out with a view to the general betterment of Alberta's coal-mining industry.

Authorization by Order in Council.—The Commission for this Enquiry was created pursuant to authorization by Order in Council, Government of the Province of Alberta, dated September 13th, 1935.

Published Report.—The Report covering this investigation has been published in printed form by the Government of the Province of Alberta.

Subject-matter of the Report.—Subject-matter of the Report is as follows:

Letter of Presentation to his Honour the Lieutenant-Governor in Council;
Publication of the Order in Council creating the Commission;
Recommendations made as result of the Enquiry;
Seven Chapters into which the main body of the Report is divided;
Two Appendices dealing with
(I) Aggregate profits and Losses and
(II) Analyses of Coal.

Acknowledgment.—On the opening page the Commissioner acknowledges the skilled assistance, which, in compiling this Report, he received from William Armour, Esq. of the Mines Department of Great Britain, who acted as

Technical Adviser, and from the following Government of Alberta officials: R. Andrew Smith, Esq., K.C., Legislative Counsel, who acted as Counsel and Secretary, Andrew A. Millar, Esq., Chief Inspector, The Coal-mines Regulation Act, Department of Lands and Mines, and James C. Thompson, Esq., C.A., Provincial Auditor, and representatives of his Department.

Résumé of the Report.—A résumé of the Report, divided into the seven chapters already referred to, follows.

Chapter I.—Chapter I, under the heading of Introductory, opens with a reference to the Commission constituted by Order in Council dated September 13th, 1935, made under the Public Enquiries Act, 1922.

Following is a list of the names of Alberta cities and towns at which sittings for the reception of evidence were held. The dates of each are given together with the names of Counsel appearing before the Commissioner on behalf of their clients. A verbatim report of the proceedings of these sittings, it is stated, is filed for reference with the Mines Branch of the Department of Lands and Mines, Edmonton.

Mention of the circulation of two questionaires, to be answered respectively by operators and miners, follows with the information that answers thereto are filed with the other documents.

The balance of the Introductory Chapter refers to the changes which have taken place in Alberta's coal industry since 1925 and points to the fact that the present Enquiry is concerned mainly with the questions of marketing, regulation and social problems.

The chapter concludes with a statement of appreciation to all who have assisted in the Enquiry. To the names of officials already mentioned, the appreciation adds those of Miss Perkins, U.S. Secretary of Labour at Washington, Mr. H. B. Butler, Director of the International Labour Office at Geneva and the staffs of their respective Departments, Mr. Howard Stutchbury, Alberta Trade Commissioner, his Assistant in Toronto, Mr. E. S. Clarry and Mr. C. K. Huckvale of the Audit Department, Government of the Province of Alberta.

The subjects dealt with in Chapters II to VII of the Report are as follows:

Chapter II.—RESOURCES AND DEVELOPMENT

1. Coal resources and Ownership
2. Mining Development and Output
   Estimated capacity of present Alberta Mines Output
3. Coal Utilization
   Electrical Development
   Carbonization
   Hydrogenation

Chapter III.—OPERATING CONDITIONS AND PRACTICE

1. Equipment
2. Mining Practice

Chapter IV.—CAPITALIZATION—PROFITS OR LOSSES—MANAGEMENT COSTS

1. Capitalization
2. Aggregate Profits and Losses
3. Increase of Cost due to Lost Time
4. Conclusion

Chapter V.—MARKETING

1. Coal Consumption in Canada
2. General Survey of Alberta's markets
3. Railway Market

4. Market in Alberta; Competition from Gas
5. Markets in the Canadian provinces, dealt with individually
6. Market in the United States
7. Recommendations
8. Conclusion

Chapter VI.—MINE WORKMEN AND LABOUR RELATIONS

1. Composition of the working force
   (i) Persons engaged
   (ii) Too many workmen
2. Operators' Organizations: Recommendation
3. Labour Organizations
4. Wages and Working Conditions
   Minimum Wage
   Minimum Wage in Small Mines
   Payment by measurement or Weight
   Wash-houses
5. Housing
6. Closed Camps
   Access
   Monopoly
   Education
   General
7. Workmen's Compensation
8. Unemployment Insurance
9. Mine Rescue Work—Recommendations
10. Miners' Certificates—Recommendation
11. Mining Industry Welfare Fund—Recommendation

Chapter VII.—REGULATION

1. Introduction
2. Germany, Great Britain, United States of America and Saskatchewan
   (i) Germany
   (ii) Great Britain
      (a) Part I of the Coal-mines Regulation Act 1930
      (b) Administration of Part I
         Output and Quotas
         Price Regulation
         Central Selling Agency
      (c) Part II of the Coal-mines Regulation Act 1930
         Conclusion
   (iii) United States of America
      The Guffey Act
      Appalachian Selling Agency
   (iv) Saskatchewan
3. Legal Regulation in Canada generally
4. Legal Regulation in Alberta generally; and for the Coal Industry
   Recommendations
5. Coal Conditions in Alberta Disorganized
   Small Mines
   Trucking
   Trade Names
6. Efforts at Voluntary Organization in the Coal Industry
   (i) Drumheller
   (ii) Edmonton
   (iii) Amalgamation
   (iv) Unfair Practices
7. Organization in the future
8. Board to manage the Coal Industry not desirable
9. Control of Development—Regulation necessary—Recommendations
10. Need of a Code—Recommendations
   (i) Code
   (ii) Price Fixation
   (iii) Minimum Wage

11. Quotas—Central Selling Agencies—Amalgamation
    (i) Domestic Coal
        (a) Quotas
        (b) Central Selling Agencies
        (c) Amalgamation
            Recommendations
    (ii) Steam Coal
        (a) Irregular Employment
        (b) Equipment
        (c) Oil in Locomotives
        (d) Closing Pits
        (e) National Policy
        (f) Conclusions

APPENDICES

I. Aggregate Profits and Losses
II. Analyses of Coal

Recommendations.—The recommendations of the Report are given immediately prior to the first chapter.

Opening under the heading of the Ontario Market, the proposal for a continuation of subventions is made. Elaboration of the various points bearing relationship to such consideration follows.

The balance of this section of the Report makes detailed recommendations regarding the following subjects:

Operators' Association
Mine Rescue Work
Miners' Certificates
Mining Industry Welfare Fund
Powers to be Transferred
Control of Development
Formulation of a Code
Fixed Prices—Minimum Wage in small Mines
Quotas—Central Selling Agencies
Amalgamation

Report of the Royal Commission to Investigate Conditions of the Half-breed Population of Alberta, 1936

Commissioners

Hon. A. F. Ewing, Judge of the Supreme Court of Alberta
J. M. Douglas, Stipendiary Magistrate for the Northwest Territories
Dr. E. A. Braithwaite, Coroner and Inspector of Hospitals, Department of Public Health, Province of Alberta

Secretary to the Commission

T. C. Rankine, Departmental Solicitor, Department of Lands and Mines.

Under the chairmanship of the Hon. A. F. Ewing, Judge of the Supreme Court of Alberta, this Report, dated at Edmonton, February 15th, 1936, deals with an investigation into the conditions of the half-breed population of Alberta.

Authorization.—A Resolution of the Alberta Legislature dated February 27th, 1933, and an Order in Council dated December 12th, 1934, the latter containing appointment of the Commissioners, constitute the Authority for this Enquiry being held.

Published Report.—The Report covering the investigation is published in mimeographed form by the Department of Lands and Mines.

Report of the Commission.—The Report of the Commission gives a detailed account of the extensive investigation which was held.

Meetings took place in Edmonton and also at High Prairie, Lac la Biche, Goodfish Lake, Grand Cache, Chipewyan, Athabaska, Groff, Frog Lake and Marlboro.

A review of this situation and its long and interesting history of Alberta, dating almost to Confederation, is given. This review deals with the nomadic nature of the Metis people, who in lacking business foresight were vulnerable to the wiles and persuasions of speculators and others which resulted in the loss of their scrip.

The Report continues under the headings of health, education and general conditions and concludes with detailed recommendations.

Report of the Royal Commission Conducting Enquiry Into the Coalhurst Mining Disaster, Alberta, on December 9th, 1935

Commissioner

Hon. H. W. Lunney, Judge of the Supreme Court of Alberta

Under the Commissionership of the Hon. H. W. Lunney, Judge of the Supreme Court of Alberta, an Enquiry was conducted into the Coalhurst mining disaster which took place in the Imperial mine operated by the Lethbridge Collieries at Coalhurst, Alberta, on December 9th, 1935 at approximately 3:30 p.m.

Authorization.—Authorization for conducting this Enquiry is contained in an Order in Council of the Alberta Legislature dated January 14th, 1936.

Published Report.—The Report, dated April 14th, 1936, is published in mimeographed form by the Department of Lands and Mines.

Report of the Enquiry.—The Report of the Enquiry into the Coalhurst mining disaster in which the lives of sixteen men were lost opens with a description of events at the mine on the day the explosion took place, the number of men engaged in the day shift and their relative positions at the time of the accident.

Continuing, it goes exhaustively into an examination of everything in the nature of direct air currents, safety lamps, voltage of electricity used, etc., with a view to establishing a cause for the disaster.

The finding of the Commission points to evidence which "clearly established that the explosion was caused by gas which had formed at the cave or overcast, that the gas came from the old workings and the explosion may have occurred in the old workings or in the new workings."

A transcript of the evidence and a list of the exhibits connected with this Enquiry are on file in the Court House at Lethbridge.

Department's Increased Revenue and Production, 1935-36

A departmental surplus of $647,931.21 compares favourably with last year's figure of $646,528.97, showing an increase of $1,402.24. A decrease of $17,020.37 in the revenue for the year is compensated for by a greater decrease in expenditure of $18,422.61.

Improvements for the year are shown by the following increases: petroleum production, 2,638 barrels; natural gas consumption, 2,074,885 Mcf.*; timber revenue, $76,500.86; production of commercial fish, 862,106 lbs. with value of increase to fishermen, $55,204.46 and value of increase as marketed, $43,655.23.

Coal produced during the calendar year, 1935, showed an increase of 714,125 tons. Coke production increased by 3,725 tons and briquettes by 2,906 tons. Additional electrical power, increased by 3,663,752 k.w.hrs.,† was used in operation of Alberta coal-mines during the year.

Shale mined during the calendar year showed an increased production of 6,697 tons with an increase in the number of bricks manufactured therefrom of 2,951,268.

The above mentioned increases were, however, offset by a decrease in school lands' revenue amounting to $136,200.17 which was mainly due to a drop in interest collections on school lands' sales.

Provincial Lands Administration

Details of all matters pertaining to provincial lands' administration are given in the section of this Report belonging to that Division.

Homestead Entries.—First and second homestead entries and soldier grants during the year totalled 1,528 covering approximately 244,480 acres in comparison with 2,780 representing an approximate acreage of 444,800 for the previous fiscal year.

Comparative statement showing totals of homestead entries and soldier grants from 1930-31 to 1935-36 follows. Fuller details of this information appear in the Accounting Division's section of this Report and in similar sections of the Annual Reports of preceding years. The decrease of 1,252 homesteads and soldier grants shown in the statement below is due principally to restriction from settlement of areas south of township 51, west of the 5th meridian and in the Grande Prairie district north of township 64.

HOMESTEAD ENTRIES GRANTED

Fiscal Year	Homesteads	Second Homesteads	Soldier Grants	Total	Homesteads Granted to Women
1930-31	3,042	557	149	3,748	....
1931-32	3,876	522	30	4,428	1,521
1932-33	3,112	358	29	3,499	976
1933-34	2,984	696	26	3,706	1,011
1934-35	2,425	325	30	2,780	835
1935-36	1,329	186	13	1,528	455
Totals	16,768	2,644	277	19,689	4,798
Decreases this year in comparison with last	1,096	139	17	1,252	380

NOTE.—Homesteads for women were not available until 1932. The total number of women's homesteads as shown in the above statement is included in the first homestead total.

Grazing

The present status of the livestock industry in Alberta is dealt with in detail by the Supervisor of Grazing in a later section of this Report.

As a result of inspections carried out during the year it is revealed that nowhere is there any great area of grass with available water supply which is

*Mcf.—Thousand cubic feet.
†K.w.hrs.—Kilowatt hours.

not utilized. Over-grazing in the southern part of the Province is the result of continued droughts.

The construction of stock-watering dams and dug-outs for the development of a water supply is reviewed together with the obvious fact that grass without such supply cannot be advantageously used.

The establishment of government grazing reserves to alleviate the present situation is also dealt with. The report finishes with a statement showing numbers of inspections applied for and made.

School Lands Administration

The purpose of school lands' administration is given fully in the section of this Report belonging to the School Lands Division.

The report of this Division gives also in detail the following subjects with which the years' administration has been concerned: auction sales, sales in force, revenue, amendment to The Provincial Lands Act, timber and hay.

A complete set of records and filing system is maintained. Information of a miscellaneous nature in connection with the Division's work is also recorded.

Mining Lands Administration

The section of this Report belonging to the Mining Lands Division outlines the nature of its administration and performance of duties.

Leases Dealt With.—An itemized statement is shown, which deals with leases in connection with petroleum and natural gas from provincial, school lands and Crown reserves, coal from provincial lands and school lands, quarrying, quartz mining, salt, gypsum, tar sands, miscellaneous and dredging, and gives the following totals between the period, October 1st, 1930, date of the natural resources transfer to the Province, and March 31st, 1936: leases active at date of transfer, 19,634; issued since that date, 2,320; divided, 59; cancelled, 17,935; renewed, 172; active, March 31st, 1936, 3,906.

Fees, Rentals and Royalties, Petroleum and Natural Gas.—Fees and rentals collected for petroleum and natural gas during the year totalled $115,543.40. Royalty collections amounted to $117,468.36.

Fees, Rentals and Royalties, Coal.—Fees and rentals collected for coal totalled $117,741.55. Royalty collections amounted to $186,691.23.

Number and Area of Leases and Prospecting Permits.—Leases in force at the close of the year under review totalled 3,437 covering 664,440.76 acres. Prospecting permits at this date numbered 54 comprising an area of 240,436.33 acres. Details of this information are given in the Division's section of this Report.

Work of the Technical Division

Issue of Notifications.—The number of legal descriptions prepared during the year for notifications (land patents) and total area of land covered thereby exceeded that of any previous year since the transfer of the natural resources to the Province.

The following comparative statement shows the number of notifications and acreage covered by same for the fiscal years 1930-31 to 1935-36:

NOTIFICATIONS ISSUED

Fiscal Year	Number of Notifications	Area, Acres
*1930-31	23	3,019.71
1931-32	784	111,424.478
1932-33	1,260	178,887.233
1933-34	1,106	165,224.553
1934-35	2,006	324,611.398
1935-36	2,965	433,529.126
Totals	8,144	1,216,696.498
Increases this year in comparison with last	959	108,917.728

*Six months period.

Roadways.—The number of plans filed with this Division by the Department of Public Works during the year totalled 40. These affected 160 parcels of Crown lands. Some of these surveys affected lands alienated by sales, etc., and in such cases quit claims were obtained for the payment of compensation exacted.

Railways.—The balance of railway plans were received from Ottawa and duly recorded and indexed upon the maps of this Department in order to complete the railway right of way records.

Transmission Lines.—Applications for licenses of occupation were received from and granted to the Calgary Power Company, Limited, and the Canadian Utilities, Limited, covering power transmission lines.

Grazing.—Legal descriptions numbering approximately 350 were prepared in connection with a large number of outstanding grazing applications. During the year the issue of leases on lands given up by the recession of waters of lakes was started, 250 of these descriptions being prepared.

New Maps.—A new map of the Edmonton district, 12½ miles to the inch, was issued. Publication was effected in Ottawa in collaboration with the Surveyor-General and 4,000 copies were received.

The general demand for the re-issue of the map of the Province, 17½ miles to the inch, necessitated at the end of the year a commitment for another 3,000 copies, 1,000 to be lithographed in black and blue and 2,000 to show additional information regarding highways. Still another re-issue is anticipated later and work is proceeding with a view to bringing the new map up to date in every particular.

It is interesting to note that a new map of Alberta is in course of preparation by the Surveyor-General at Ottawa on the scale of 16 miles to the inch. This map is to be issued in 2 sheets, the southern one to be given prior attention. A similar scale map is to be made available covering Saskatchewan and Manitoba.

During the year an unusual number of drafting and mathematical computations were executed. Wherever possible assistance was given in co-operating with other Departments in the supply of maps, sketches and plans covering a variety of subjects.

Petroleum and Natural Gas

A noticeable increase in the development activity of the Province's oil fields was experienced during the year. The operation of wells on the west flank of Turner Valley in the southern end was followed with a confidence which anticipated that this area would be productive of very satisfying results. Drilling

in unproved areas of the Province was also carried out on a larger scale than heretofore.

Amendments to Regulations.—Amendments to regulations effected during the year assisted very greatly in the general renewal of interest covering the Province's petroleum industry.

Outstanding in this respect were changes which set out the expenditures allowable in lieu of rentals and which provided for the unitization of royalties.

Progress in Different Fields.—Drilling activity in addition to the operations in Turner Valley were either started or resumed near Lundbreck, Pincher Creek, Hunter Valley, New Valley and Comrey.

Quotas for Gas Withdrawals.—Quotas for gas withdrawals were discontinued during the year, no penalties having been imposed for violations of the regulation governing this procedure.

Repressuring of the Bow Island Field.—Repressuring of the Bow Island Field was continued as in previous years with pressure at the end of the year under review being approximately 504 pounds.

Bituminous Sands.—The erection of a plant for separating sand from bitumen is to take place, it is understood, during 1936, interests from the United States having acquired leases in the McMurray area with a view to engaging in this new industry.

Petroleum Production.—A detailed summary of oil production from 1914 to the end of the fiscal year under review is given in the Petroleum and Natural Gas Division's section of this Report.

NATURAL GAS CONSUMPTION

Fiscal Year	Mcf.
*1929-30	23,228,637
*1930-31	23,312,006
1931-32	18,327,139
1932-33	16,061,383
1933-34	16,346,376
1934-35	16,600,059
1935-36	18,674,944
Total	132,550,544
Increase this year in comparison with last	2,074.885

*Under federal administration prior to October 1st, 1930, and under provincial following that date.
†Mcf.—Thousand cubic feet.

Forest Service

The abolition of the Edmonton Land Agency,—with its former responsibilities transferred to those Divisions of the Department to which they were directly applicable,—resulted in an addition to the administrative duties of the Forest Service. These added duties included all matters relative to timber on provincial lands. The portion of the Edmonton Agency staff, formerly engaged in this work, was transferred to the head office staff of the Forest Service for the purpose of carrying on with these duties under the new supervision.

Fire Season.—It is probable that the Province of Alberta will never again experience a fire season during which destruction of timber was so insignificant. Cost of fire-fighting was reduced to a minimum. This unusual situation is explained by regular rains over wide-spread areas combined with vigilance on the part of the field staff.

A summary of fire losses within and outside Alberta forest reserves from October 1st, 1930, date of the natural resources transfer from dominion to provincial control, to December 31st, 1935 is given on the next page.

Timber Industry.—Timber operations of all kinds on berths and permits on provincial and school lands together with permits and sales in forest reserves showed an appreciable increase during the year. A detailed statement of these operations is given in the sections of this Report dealing with Forestry and School Lands' administration.

Grazing on Forest Reserves.—An increase of forest reserve grazing permits appears for the year. Increases are also shown in numbers of cattle and sheep grazing on forest reserve pastures but a decrease is shown in horses.

SUMMARY OF FIRE LOSSES WITHIN ALBERTA FOREST RESERVES

Period	Number of Fires	Cost of Suppression	Area (Acres)	Salvable Timber *M.f.b.m.	Salvable Timber (Cords)	Unsalvable Timber *M.f.b.m.	Unsalvable Timber (Cords)	Total Loss
October 1, 1930 to March 31, 1931	9	$ 551.67	41.925	.....	.....	2.00	129.00	$ 71.69
April 1, 1931 to December 31, 1931	31	17,624.12	52,218.05	2,370.5	3,086	6,295.73	111,599.00	154,651.47
Calendar Year 1932	32	3,491.04	2,555.75	8	15,863	3,845.00	1,005.60	8,790.73
Calendar Year 1933	39	18,409.92	29,275.88	26.75	1,201	19,188.25	108,414.00	95,796.93
Calendar Year 1934	47	31,118.51	21,963.00	1,510	9,200	2,661.00	209,550.00	96,195.87
Calendar Year 1935	12	94.56	6.50	.....	.....	.....	60.00	45.50
TOTALS	170	$ 71,289.82	106,061.105	3,915.25	29,350	31,991.98	430,757.60	$ 355,552.19

SUMMARY OF FIRE LOSSES OUTSIDE ALBERTA FOREST RESERVES

October 1, 1930 to March 31, 1931	47	$ 686.64	11,145.19	155.00	.....	3.75	.....	$ 79,950.85
April 1, 1931 to December 31, 1931	591	82,088.89	552,658.07	134,536.00	104,199.00	122,690.5	684,625.5	712,835.79
Calendar Year 1932	347	15,320.51	133,562.14	274.75	12,215.00	40,627.15	132,743.00	152,085.58
Calendar Year 1933	249	16,971.75	64,489.12	4,383.50	13,953.50	41,694.50	59,545.00	100,008.43
Calendar Year 1934	193	7,050.51	36,907.00	3,404.50	3,159.00	547.50	14,464.00	29,825.77
Calendar Year 1935	85	1,558.90	6,313.25	160.00	1,195.00	1,513.00	5,371.00	5,722.50
TOTALS	1,512	$123,677.20	805,074.77	142,913.75	134,721.50	207,076.40	896,748.5	$1,080,428.92

SUMMARY OF FIRE LOSSES WITHIN AND OUTSIDE ALBERTA FOREST RESERVES

October 1, 1930 to March 31, 1931	56	$ 1,238.31	11,187.115	155.00	.....	5.75	129.00	$ 80,022.54
April 1, 1931 to December 31, 1931	622	99,713.01	604,876.12	136,906.5	107,285.00	123,986.23	796,224.5	867,487.26
Calendar Year 1932	379	18,811.55	136,117.89	282.75	28,078.00	44,472.15	133,748.60	160,876.31
Calendar Year 1933	288	35,381.67	93,765.00	4,410.25	15,154.50	60,882.75	167,959.00	195,805.36
Calendar Year 1934	240	38,169.02	58,870.00	4,914.50	12,359.00	3,208.50	224,014.00	126,021.64
Calendar Year 1935	97	1,653.46	6,319.75	160.00	1,195.00	1,513.00	5,431.00	5,768.00
TOTALS	1,682	$194,967.02	911,135.875	146,829.00	164,071.50	239,068.38	1,327,506.10	$1,435,981.11

*M.f.b.m.—Thousand feet, board measure

A comparative annual statement dealing with forest reserve grazing is given in the Forestry section of this Report.

Nursery and Tree Distribution.—Oliver Institute continued nursery operations as in the preceding year but with the exception of the Lethbridge jail no other work of this nature, either in the fall of 1935 or the spring of 1936, was attempted at the other establishments.

Publicity.—The necessity for exercising greater care with a view to the conservation of forest resources is a principle which is generally accepted by the public.

A healthier method of publicity, however, should be extended as soon as possible to oppose the regrettable form, unfortunately the principal kind in force at the present time, which arises through the medium of the press as a result of destructive fires.

Fisheries

The exportation of marketable fish during the period under review showed a continuation of the improvement noticeable during the previous year. With careful attention to handling and packing the export market can unquestionably absorb available quantities of fish produced from Alberta lakes.

Angling during the year was reported in some districts to be excellent, though in certain accessible streams it was pronounced only fair on account of overfishing.

Commercial Production.—Commercial fishing for the year totalled 4,921,542 pounds, an increase of 862,106 pounds over last year. Valuation of the catch to fishermen was $200,324.00, an increase of $55,204.06, and valuation as marketed, $287,726.00, an increase of $43,655.23. Catches showed increases in whitefish, lake trout, pike, tullibee, sucker, ling, goldeye and mullet with decreases in pickerel and perch.

TOTAL AMOUNT OF FISH TAKEN FOR COMMERCIAL PURPOSES AND VALUATIONS

Fiscal Year	Weight (Lbs.)	Value to Fishermen	Value as Marketed
*1930-31	1,851,848	$ 70,624.00	$ 94,032.00
1931-32	3,337,980	115,928.10	189,927.88
1932-33	2,655,214	94,439.65	130,808.51
1933-34	3,566,356	131,124.35	200,755.24
1934-35	4,059,436	145,189.54	244,070.77
1935-36	4,921,542	200,394.00	287,726.00
TOTALS	20,392,376	$757,699.64	$1,147,320.40
Increases this year in comparison with last	862,106	$ 55,204.46	$ 43,655.23

Domestic Fishing.—The issue of domestic licenses totalled 622, a decrease of 32 from last year.

Indian Fishing.—A decrease of 41 permits issued to Indians is shown in the total of 801 for the year.

Licenses and Permits.—Annual comparative statement for the fiscal years from 1930-31 to 1935-36 showing totals of licenses and permits issued is given in the section of this Report belonging to the Fisheries Division.

Angling.—Good fishing continued in the Bow, Elbow and Highwood rivers. Angling for Arctic grayling in the Macleod and Clearwater rivers was also favourably reported on and a satisfactory sporting season at Cold Lake was in evidence.

*Six months period

The experimental planting of Lock Leven trout in the Clearwater (Central Alberta) and Red Deer watersheds has proved successful, several of these species having been caught in these waters during the season under review.

TOTAL AMOUNT OF FISH TAKEN BY ANGLING

Fiscal Year	Game Fish Trout, Rocky Mountain Whitefish and Arctic Grayling (Lbs.)	Other Fish Goldeye, Pickerel, Perch and Pike (Lbs.)	Total (Lbs.)
*1930-31	.....	1,225,000	1,225,000
1931-32	457,975	1,756,919	2,214,894
1932-33	422,638	1,260,034	1,682,672
1933-34	355,000	1,133,730	1,488,730
1934-35	420,589	977,214	1,397,803
1935-36	357,720	870,943	1,228,663
TOTALS	2,013,922	7,223,840	9,237,762
Decreases this year in comparison with last	62,869	106,271	169,140

Loss of Fish and rescuing Fish.—Drought conditions as in the previous year were reported from several districts resulting in low water in many of the Foothills streams and consequent loss of fish.

The rescue of some 2,000 game fish from threatened districts and their transference to deeper waters was effected by Fisheries officers.

Predaceous Fish removed from Trout Waters.—A total of 6,222 predaceous fish—sucker, pike, ling and Dolly Varden trout—were removed from trout waters during the year.

SUMMARY OF CONFISCATIONS AND PROSECUTIONS RESULTING FROM INFRACTIONS OF THE FISHERIES REGULATIONS

Fiscal Year	Confiscations	Prosecutions
*1930-31	29	27
1931-32	40	68
1932-33	68	89
1933-34	53	62
1934-35	59	60
1935-36	126	66
TOTALS	375	372
Increases this year in comparison with last	67	6

FISH CULTURE—PLANTING OF GAME FISH FRY AND FINGERLINGS INTO PROVINCIAL WATERS OUTSIDE THE NATIONAL PARKS

Fiscal Year	Game Fish (Trout) Number of Plantings	Number of Fry
*1930-31	.....	.....
1931-32	157	2,236,500
1932-33	147	1,960,250
1933-34	168	2,180,850
1934-35	179	2,361,865
1935-36	186	2,555,986
TOTALS	837	11,295,451
Increases this year in comparison with last	7	194,121

Lesser Slave Lake Hatchery.—The Lesser Slave Lake hatchery, closed since May, 1933, was placed in operation again during the fall of 1935. A staff was engaged at the spawning camp at Whitefish River about October 1st for the purpose of collecting whitefish eggs for placing in the hatchery and planting in neighboring waters.

*Six months period

EXAMINATION AND STOCKING OF LAKES AND OTHER BODIES OF WATER

Fiscal Year	Lakes and other Bodies of Water examined regarding suitability for Stocking	Number found suitable	Number found unsuitable	Lakes and other Bodies of Water stocked during Season
*1930-31	....	....	....	....
1931-32	37	30	7	4
1932-33	20	9	11	22
1933-34	30	17	13	2
1934-35	15	8	7	27
1935-36	23	9	14	4
TOTALS	125	73	52	59

REVENUE OBTAINED FROM FISHING LICENSES, PERMITS, SALES AND SUNDRIES

Fiscal Year	Revenue
*1930-31	$ 4,849.29
1931-32	18,861.22
1932-33	14,739.60
1933-34	15,071.61
1934-35	18,947.76
1935-36	20,613.41
TOTAL	$93,082.89
Increase this year in comparison with last	$ 1,665.65

Coal

The output of coal produced from Alberta mines during the calendar year 1935 was 5,462,973 tons with a valuation of $13,946,338.15, being an increase of 714,125 tons over the preceding year. In addition to this production 395 tons were mined by farmers under permit for their own use.

The production of coke for this period showed an increase of 3,725 tons and briquettes, 2,906 tons.

Disposition of Coal.—Coal sold for consumption in Alberta totalled 1,246,959 tons; sold for consumption in other Canadian provinces, 1,843,046 tons; sold for consumption in the United States, 24,712 tons; sold to railway companies, 1,960,555 tons; used for making briquettes, 17,490 tons; used for making coke, 98,233 tons; used under colliery boilers, 163,197 tons; used by colliery railways, 7,847 tons; put to stock, 68,868 tons; put to waste, 90, 014 tons. The above tonnages include the coal lifted from stock and waste heaps.

COAL PRODUCTION

Calendar Year	Tonnage	Valuation
*1930	5,755,911	$19,379,000.00
1931	4,564,290	13,415,745.00
1932	4,870,030	13,441,193.00
1933	4,714,784	12,197,339.00
1934	4,748,848	12,440,616.53
1935	5,462,973	13,946,338.15
TOTALS	30,116,836	$84,820,231.88
Increases this year in comparison with last	714,125	$ 1,505,721.62

*Under federal administration prior to October 1st, 1930, and under provincial following that date

PRODUCTION OF COKE AND BRIQUETTES

Calendar Year	Coke (Tons)	Briquettes (Tons)
*1930	.....	24,111
1931	.....	15,102
1932	2,183	13,582
1933	49,279	16,104
1934	59,703	15,906
1935	63,428	18,812
TOTALS	174,593	103,617
Increases this year in comparison with last	3,725	2,906

Disposition of Electrical Power.—Electrical power used by Alberta coal-mines during the year totalled 23,111,373 k.w.hrs.†

ELECTRICAL POWER USED FOR OPERATION OF ALBERTA COAL-MINES

Calendar Year	K.w.hrs.†
*1930	25,003,606
1931	16,918,625
1932	14,875,890
1933	17,611,959
1934	19,447,621
1935	23,111,373
TOTAL	116,969,074
Increase this year in comparison with last	3,663,752

Royal Commissions.—The Royal Commission respecting the coal industry of the Province of Alberta, held during the year under the commissionership of the Right Hon. Sir Montague Barlow, Bart., P.C., K.B.E., LLD., and the Coalhurst mining disaster which took place on December 9th, 1935,—leading to a Royal Commission conducting an Enquiry as to cause, held by the Hon. H. W. Lunney, Judge of the Supreme Court of Alberta, just after the close of the calendar year —made considerable demands on the time and services of the Mines Branch of this Department during the period under review.

Shale and Clay Mined

During the calendar year 1935 four shale pits were in operation. The production from these pits totalled 20,258 tons of clay and shale from which 7,349,300 bricks were manufactured.

SHALE MINED—BRICKS AND TILES MANUFACTURED

Calendar Year	Shale Mined (Tons)	Bricks Manufactured (Number)	Tiles Manufactured (Tons)
*1930	67,517	22,007,045	.....
1931	23,855	7,091,080	2,825
1932	8,446	3,444,010	182
1933	3,234	1,221,060	.....
1934	13,561	4,398,032	1,171
1935	20,258	7,349,300	.....
TOTALS	136,871	45,510,527	4,178
	Increase	Increase	Decrease
This year in comparison with last	6,697	2,951,268	1,171

Mines Branch Annual Report.—Statistical information covering Alberta's coal-mining activities and production of shale and clay mined for the calendar year 1935 is given in complete detail in the published Annual Report of the Mines Branch, Department of Lands and Mines, for this period, which appears as a separate publication to this Report.

*Under federal administration prior to October 1st, 1930, and under provincial following that date
†K.w.hrs.—Kilowatt hours

Bird Sanctuaries and Public Shooting Grounds

In conjunction with a representative of the Dominion Parks Branch an examination of a number of the bird sanctuaries and public shooting grounds of the Province was made during the summer of 1935 with a view to determining present suitability of these areas for this particular purpose and the cancellation of those now considered unsuitable, drought conditions of the last ten to fifteen years having greatly reduced the value of some of these reservations as water-fowl sanctuaries or shooting grounds.

Areas, recommended by various Fish and Game Associations to take the place of those recommended for cancellation, were examined.

Regulations Pertaining to Pleasure Boats

The enforcement of regulations appertaining to the operation of pleasure boats was again carried out under the supervision of the Fisheries Division. All complaints regarding infractions of regulations were attended to by inspectors of the Division.

Individual detailed reports from the various Divisions of the Department follow.

Your obedient servant,

J. Harvie,
Deputy Minister.

Edmonton, February 2nd, 1937.

Provincial Lands Administration

REPORT OF THE DIRECTOR OF LANDS, D. H. BOLES

The reorganization of the Department, made effective at the opening of the fiscal year under review, divided the administrative control of Alberta lands between this Division and the Divisions of Forestry, School Lands and Mining Lands, the last two being newly formed at the beginning of the year.

In the process of reorganization the Edmonton Land Agency was abolished with a view to eliminating the duplication of records, the area of the Edmonton Land District coming under the direct control of this Division.

With all matters pertaining to school lands, mining lands and timber on provincial lands in the Edmonton District being transferred to the Divisions already stated, the duties of this office represented a supervision as heretofore of the Calgary, Lethbridge and Peace River Land Agencies, the provincial sub-agencies, full time and part time, and all matters pertaining to provincial lands in the Edmonton Land District.

Provincial Land Agencies and Sub-Agencies.—The Land Agencies at Calgary, Lethbridge and Peace River continued as heretofore with the transmission of applications to the Administration Office in Edmonton and in maintaining service of a general nature to the public. Sub-agencies were also represented by the inspection staff who acted as sub-agents and were in attendance at various centres as follows:—6 locations, 1 day each week; 7 locations, 2 days each month; 30 locations, one day each month.

The following applications were received throughout the Province during the year:

Cancellation of homestead entries	805	Townsites	9
Cultivation leases	81	Miscellaneous leases	6
Grazing leases	441	Accrued area leases	264
Patents	2,173	Fur farming leases	1
Church sites	9	To lease surface rights	2
Cemetery sites	9	Licenses of occupation	6
School sites	55	Supplementary grants	8
To purchase provincial lands	49	Release of habendum clause	5

Homestead Entries.—Homestead entries for the year totalled 1,515 and Soldier Grants 13.

Applications for patent on hand at April 1st, 1935, added to those received during this fiscal year, totalled 4,919.

Other business transacted was as follows:

Leases issued:

Accrued area	195	Surface rights	2
Cultivation	250	Townsites	9
Fur farm	5	Miscellaneous	5
Grazing	315	Licenses of occupation	6

Land Sales Granted.—Sales of provincial lands granted during the year totalled 90.

Permits Issued.—Grazing permits issued totalled 875 and hay, 645.

Accrued Area Leases Issued.—The total of accrued area leases is shown in the above statement as 195. This total covers an area of 22,030 acres. During the year 3 of these leases comprising 200 acres were cancelled leaving 192 covering 21,830 acres in force.

Accrued area leases are being issued to the holders of beneficial rights in adjoining lands, the main object in granting each lease being to assist in the destruction of noxious weeds.

Cultivation Leases Issued.—In the statement shown above cultivation leases issued for the year totalled 250. These covered an area of 43,656 acres. One lease of 160 acres was cancelled during this period leaving 249, comprising 43,496 acres, in force.

Cultivation leases call for delivery to the Department of a share of the crop or crops grown on the cultivated area. The Department's share is based on the location of the land and is arrived at as a result of a survey made for that purpose.

In order to assist lessees, the Department's share was reduced. Due to drought and climatic conditions returns have not been as substantial as anticipated.

Cancellations:			
Homestead and soldier grant entries	1,725	Provincial lands' sales	91
Grazing leases	462	Miscellaneous leases	6

GRAZING

	Number of Ranches		Acreage under Lease	
Dominion leases in force, April 1st, 1935		2,839		2,707,892
Cancelled	175		118,581	
Cancelled and amalgamated in new leases	131		138,835	
Cancelled and renewed in new leases	159		46,837	
		465		304,253
Active dominion leases, March 31st, 1936		2,374		2,403,639
Provincial leases in force, April 1st, 1935		541		370,554
63 Dominion leases and 29 applications amalgamated	29		139,261	
3 Dominion leases and 3 applications renewed and amalgamated	3		1,141	
41 Dominion leases renewed and amalgamated with 54 dominion leases and 3 provincial leases	36		25,881	
7 Dominion leases renewed and amalgamated with 13 dominion leases and 6 applications	6		22,034	
1 Dominion lease and 1 provincial lease amalgamated	1		396	
1 Provincial lease and 1 application	1		641	
108 Dominion leases renewed	96		29,544	
140 Applications	140		87,449	
3 Partial Assignments	3		1,120	
		315		307,467
Active provincial leases, March 31st, 1936		856		678,021

Notifications Issued.—An itemized statement of notifications issued and acreage covered thereby is given in the Technical Division's section of this Report.

Land Inspections:	
Outstanding, April 1st, 1935	1,163
Reports called for during the year	1,561
	2,724
Reports received during the year	1,576
Outstanding, March 31, 1936	1,148

Office Transactions.—Office transactions during the year were as follows:

Total letters received	95,274	Number of stencils cut	302
Daily average received	345.80	Number of pages mimeographed	76,494
Total letters mailed	126,126	Number of translations made for this and other departments	391
Daily average mailed	425.77	New files made	10,336
Assignments recorded	84		

Due to the closing of the Edmonton Land Agency it was necessary to amalgamate the files and registers of that office with those of the Administration Office.

Provincial Grazing Reserve.—The lands in township 1, range 19, west of the 4th meridian have been placed in a reserve for community grazing with a caretaker in charge.

The reserve has been fenced, has an ample supply of water and has been grazed to the limit of 500 head of stock (horses and cattle).

It was originally intended to confine the season from May 15th to October 31st, but owing to the lack of feed, the grazing of a limited number of stock during the winter was permitted.

Macleod R.C.M.P. Reserve.—The lands comprising the R.C.M.P. reserve at Macleod, have by order in council been transferred from the Department of the Interior, Ottawa to the Province for administration purposes.

A survey of the property is being made in order to determine what disposition should be made of the lands and improvements.

Flooded Area.—Regulations have been established whereby settlers who have suffered hardship from extreme flood conditions in the northern part of the Province may exchange areas of land affected for lands in a location where an adequate return for their labour seems more assured.

Provincial Parks.—Lands being found suitable for parks or recreation purposes, more especially locations on lakes or rivers which may later be required by settlers for bathing or camping purposes, are being placed under reservation. A total of 1,760 acres was recently turned over to The Provincial Parks Board for inclusion in the Saskatoon Mountain Park.

Coutts Quarantine Reserve.—Negotiations are now under way for the transfer of lands in the Coutts Quarantine Reserve from the Department of the Interior, Ottawa to the Province of Alberta for administration purposes.

REPORT OF THE SUPERVISOR OF GRAZING, G. A. FORSTER

Owing to the vacancy caused in the Grazing Branch of this Department by the death on August 9th, 1934 of Albert Helmer, Supervisor, and to the fact that no appointment to fill the vacancy was made until the following fiscal year now under review, no inspections were made during this eight month period with the result that a number of applications were outstanding at the close of the fiscal year ending March 31st, 1935.

With a view to making these inspections as speedily as possible, the services of H. S. McCowan, Homestead Inspector, were loaned to this Branch for a period of approximately four months. P. J. Biddell, Assistant Supervisor, also contributed to this work until September 5th when by special request his services were transferred to the Department of Agriculture as a brand-reader at Moose Jaw, Saskatchewan. The services of G. H. Cloakey were also secured by this Branch for inspection work for a three month period prior to his assignment to special investigations dealing mainly with grazing in the forest reserves. With this assistance 585 inspections were made during the period of this report.

Weather and road conditions throughout a large portion of the winter made field work impossible. During this time a careful study of all applications was made, with plans and maps being prepared for inspection work during the coming spring and summer, when it was expected that all applications still outstanding would be inspected and duly reported upon.

The results of the inspections during the year revealed the fact that nowhere is there any great area of grass with an available water supply that is not utilized. Overgrazing has been the practice on many ranges and is accounted for, specially in the southern part of the Province, by drought and not because

stockmen have been attempting to pasture more stock than usual. With less rainfall there was obviously less pasturage. Overgrazing is more noticeable where the land has been grazed by sheep, a detrimental factor which, if continued, will require controlling. The majority of stockmen recognize this danger and are anxious to co-operate in preventing damage of this nature from materializing.

The present regulations, requiring the lessee to maintain one head of stock for each thirty acres under lease, are no longer practical especially in that part of the Province where drought has prevailed for the past several years. An amendment to these regulations authorizing the Supervisor to impose restrictions where deemed necessary regarding the number of stock to be pastured on a leasehold is now desirable.

This is recommended not only in the interests of the livestock industry's survival but also for the general protection of grass. At the present time the livestock industry, as far as cattle are concerned, is regarded as a hazardous occupation which now depends solely upon exceptionally favourable circumstances and good management to save it from financial disaster.

Owing to the continued low prices received for cattle, the ranchers contend that they are unable to meet operating expenses and pay taxes and rentals in full. Drought conditions have forced them to reduce the numbers of stock carried on their leaseholds, and many, who in the past have made a practice of reserving portions of their leaseholds for winter pasture, have been obliged to use these reservations during the fall. Consequently they have been put to additional expense to provide feed during the winter.

The continuance of this practice, namely that of using the entire leasehold during the summer and fall months without any reserve pasture for the winter, can only result in severe losses of livestock should a hard winter follow.

Taking into consideration the above adverse conditions existing today in the livestock industry of Alberta, it is imperative that the supervision of grazing be exercised to a greater extent than ever. The alternative is a sinister one which involves the probability of Alberta grass lands becoming completely overgrazed and developing into a desert.

The construction of stock-watering dams and dug-outs for the development of a water supply is receiving engineering and financial assistance under the Prairie Farm Rehabilitation Act in connection with which Mr. John Vallance is Senior Rehabilitation Officer at Regina, Saskatchewan.

On many of the ranges where watering places are too far apart, it would be advisable to apply for this assistance. It is apparent that under these conditions stock, which are required to travel too great a distance to and from water to grass, do not put on flesh. Under these circumstances lands adjacent to such watering places become very much overgrazed resulting in the carrying capacity being less than if a greater number of watering places were available.

Grass without an adequate water supply cannot be utilized advantageously except in the winter when there is snow on the ground and horses can be pastured or in the early part of the summer if the spring run-off provides a supply in the sloughs. In order to make use of these areas at such times, additional fencing often becomes necessary, an adverse factor which adds to the cost of operation.

Free public grazing (which is uncontrolled pasturing) has proved itself to be generally detrimental. Areas set aside for this purpose are mostly overgrazed resulting in very little benefit to owners whose stock become unfit for ad-

vantageous marketing. Revenue also is lost to the government which might otherwise have been derived had the lands been under lease.

During the year an experiment in controlled pasturing has been in operation in township 1, range 19, west of the 4th meridian. Uncontrolled public grazing had been permitted on this township for at least two years previous to this experiment being started and as a result it was completely grazed off.

This township is well watered, the Milk River running diagonally across it from the south-west to the north-east. In addition to this there is a flowing well in the south-east half. The township is well fenced and was created a government grazing reserve for the purpose of pasturing surplus stock of the resident farmers in the adjoining district. It was gazetted a pound. Applications were received, permits issued and a fee of 35c per month per animal was charged.

The number of stock for which permits were issued was restricted to four head per quarter section so as to give surplus grass an opportunity to grow. In spite of a dry summer this was accomplished.

An inspection of the township in December revealed more grass than there had been in the previous May. For this reason numerous requests were received from nearby ranchers, whose own pastures had become badly depleted, for permits to graze their stock in that area during the winter.

Petitions have also been received by the Department for the establishment of an additional township to be used for the purpose of a government grazing reserve, the petitioners favouring this policy to that of forming a community grazing association and leasing the land.

Applications and reports for the fiscal year ended March 31st, 1936, were as follows:

Number of requests to inspect applications	208
Number of requests to inspect renewal applications	26
Number of special reports requested	12
Number of requests to inspect stock watering reserves	6
Number of requests to inspect public grazing reserves	2
	254

Number of applications reported on	365
Number of renewal applications reported on	186
Number of special reports made	27
Number of stock watering reserves reported on	6
Number of public grazing reserves reported on	1
	585

School Lands Administration

REPORT OF THE SUPERINTENDENT OF SCHOOL LANDS, J. W. STAFFORD

For the reason that the following report dealing with school lands administration represents the first general report submitted on this particular subject since the transfer of the natural resources to provincial control, it is considered advisable to briefly set forth the purpose of this administration.

School lands comprise sections 11 and 29 in each surveyed township, together with such additional lands as may from time to time be designated school land, and in the aggregate they total approximately one-eighteenth of the surveyed area within the Province.

School Endowment Fund.—These lands were set aside by act of parliament to establish an endowment which would provide moneys for the purpose of education. It will, therefore, be readily observed that the lands are not administered on a colonization basis, but for the purpose of deriving as great a revenue as possible for the benefit of the School Endowment Fund.

All moneys realized as principal from the sale of school lands are invested in securities of Canada to form an Endowment Fund, and the interest accruing therefrom, together with all moneys received as payment on account of interest on sales, as well as miscellaneous revenues from timber, hay, grazing, mining, etc., are used for the support of organized schools. The Endowment Fund, therefore, remains intact and increases annually to the extent of principal moneys transferred thereto.

By the terms of The Natural Resources Agreement with this Province, the administration of school lands was transferred to Alberta. It was subject, however, to the provision that these lands shall continue to be administered by the Province in accordance with the provisions of sections 37 to 40 of the Dominion Lands Act for the support of schools organized and carried on therein in accordance with the law of the Province.

The terms and conditions of all sales are statutory, but the disposal of timber, hay, grazing, cultivation and other privileges is governed by regulations established under various orders in council.

Auction Sales.—No general auction sales have been held since the transfer of the natural resources, but in a few cases auction sales have been held for individual parcels. The total area sold by this method is 338.25 acres, realizing $2,469.30, an average of $7.30 per acre.

During the past three years a large number of purchasers voluntarily surrendered lands which they had acquired by purchase owing to the fact that they were not in a position to carry out the terms and conditions of the sales. In the majority of cases where a purchaser had improved the land by way of the erection of buildings or cultivation, such purchaser was granted prior right to obtain a cultivation and grazing permit and these permits were subsequently embodied in cultivation and grazing leases. A total acreage of 215,439.6 is now held under these leases. Ten cultivation and grazing leases, comprising an area of 1,595.91 acres, were cancelled during this period.

Sales in Force.—On the 1st of October, 1930, when the natural resources were transferred to this Province, there were 4,365 open sales transferred, comprising an area of 676,828.24 acres of a value of $10,551,009.23.

Between the 1st of October, 1930 and the 31st March, 1936, 2,069 sales were cancelled, comprising an area of 321,726.78 acres of a value of $5,346,435.51. In this period 296 sales, covering 22,267.12 acres of a value of $364,156.47, were paid in full. At the end of this period there were sales in force to the number of 2,167 comprising 333,710.02 acres of a value of $4,848,410.89.

Revenue.—The total net revenue received during this fiscal year was $254,142.49, which compares with a revenue of $407,919.79 for the previous fiscal year. This reduction is partly accounted for by the cancellation of numerous sales and by crop failure last year in districts in which many of the present sales are located. It is also accounted for by the fact that numerous purchasers have stated that it is not their intention to make further payments on sales until such time as they receive a reduction, or compromise, on the purchase price agreed to be paid under the terms and conditions of the sale. Classification of these revenues will be found in the section of this Report belonging to the Accounting Division.

Amendment to the Provincial Lands Act.—At the 1935 session of the Provincial Legislature, section 44 of The Provincial Lands Act was amended empowering the Minister—

(a) to give effect to any compromise, adjustment or arrangement made pursuant to *The Farmers' Creditors Arrangement Act,* 1934, in respect of any agreement for the sale of school lands or of any sum payable under any such agreement on account of principal and interest on either of them; and

(b) to reinstate upon such terms and conditions as to him seem proper any such agreements as have been cancelled at any time since the thirtieth day of September, 1930, and before the 1st day of April, 1935, and upon so doing to adjust and compromise the sums outstanding whether for principal or interest under the cancelled agreement and to enter into a new agreement in lieu of the cancelled agreement upon such terms and conditions as to the amounts payable for principal and interest, the instalments in which payments are to be made and such other terms and conditions as may be prescribed from time to time by the Lieutenant-Governor in Council.

These amendments were to become effective upon proclamation of the Lieutenant-Governor in Council. This legislation, however, required to be implemented by legislation passed by the Federal Parliament as an amendment to The Dominion Lands Act, but during the period covered by this Report the necessary enabling legislation was not passed. No action, therefore, could be taken in so far as the amendments referred to herein were concerned.

Timber and Hay.—In connection with timbering operations, 23 berths were disposed of by sale from which 3,449,915, F.B.M.* of lumber and 30,052 railway ties were manufactured. Timber permits issued during the year totalled 336 producing 1,914,215, F.B.M.* of lumber and 4,240 railway ties. Timber seizures numbered 29 covering 133,151 F.B.M.* of lumber and 609 railway ties.

Hay permits were issued to the number of 361 and 2,587 tons of hay cut under authority of same.

In addition to maintaining a complete set of land records and a thorough filing system in this Division, the following further transactions were carried out in connection with the administration of school lands:

Assignments registered	66	Hay permits issued	361
Cultivation and grazing leases issued	1,135	Timber permits issued	336
Cultivation and grazing leases cancelled	10	Timber seizures	29
Grazing permits issued	2,536	Letters despatched	33,043

*F.B.M.—Feet, board measure

Mining Lands Administration

REPORT OF THE SUPERINTENDENT OF MINING LANDS, J. W. HAMILTON

The Mining Lands Division was established as an additional unit to the Department of Lands and Mines on April 1st, 1935. It is charged with the administration of regulations governing the disposal of mineral rights, solid, liquid or gaseous, which are the property of the Crown in provincial and school lands. The Division also carries out the duties of Mining Recorder for the Edmonton District.

All mining land leases, petroleum and natural gas prospecting permits and special permits are prepared and issued by the Division. Applications are received at this office and at the offices of the different provincial land agencies, the latter forwarding same to this Division for approval and further action. In connection with this work complete sets of township plans and registers are kept up to date.

The following is a list of leases dealt with from October 1st, 1930, date of the transfer of the natural resources to the Province of Alberta, to March 31st, 1936:

	Active at date of transfer	Issued	Divided	Cancelled	Renewed	Active at March 31st, 1936
Petroleum and natural gas, provincial lands	16,899	1,825	58	15,541	82	3,159
Petroleum and natural gas, school lands	1,964	204	....	1,907	1	260
Petroleum and natural gas, Crown reserve	5	19	....	6	....	18
Coal, provincial lands	620	248	1	389	84	396
Coal, school lands	60	20	....	39	5	36
Quarrying	45	....	....	23	....	22
Quartz mining	4	....	....	....	....	4
Salt and gypsum	1	....	....	1	....	....
Tar sands	3	....	....	1	....	2
Miscellaneous	1	....	....	....	....	1
Dredging	32	4	....	28	....	8
TOTALS	19,634	2,320	59	17,935	172	3,906

ACREAGE CONTAINED IN ABOVE LEASES

Petroleum and natural gas, provincial lands	2,263,076	364,660	2,016,723	11,597	599,417
Petroleum and natural gas, school lands	191,726	34,644	183,886	420	42,064
Petroleum and natural gas, Crown reserve	6,160	22,401	5,601	.....	22,960
Coal, provincial lands	236,984	100,512	155,323	68,777	113,396
Coal, school lands	9,570	1,642	4,581	826	5,805
Quarrying	1,675	.....	552	.....	1,123
Quartz mining	182	.....	.....	.....	182
Salt and gypsum	200	.....	200	.....	.....
Tar sands	3,737	.....	1,825	.....	1,912
Miscellaneous	3,560	.....	.....	.....	3,560
TOTALS	2,716,870	523,859	2,368,691	81,620	790,419
Dredging (in miles)	145	12	125	.....	32

Statement of Business Transacted, 1935-36

PETROLEUM AND NATURAL GAS

	Number	Acres
Petroleum and natural gas leases issued on provincial lands	643	64,702.42
Petroleum and natural gas leases issued on school lands	74	6,880.90
Petroleum and natural gas leases issued under Crown reserve regulations	6	3,200
Petroleum and natural gas leases cancelled and relinquished on provincial lands	853	259,516.02
Petroleum and natural gas leases cancelled and relinquished on school lands	106	18,053.14
Permits to prospect issued	50	232,738
Fees and rentals collected	$115,543.40	
Royalties collected	117,468.36	
Total	$233,011.76	

COAL

	Number	Acres
Coal leases issued on provincial lands	20	1,361.65
Coal leases issued on school lands	5	218.68
Coal leases cancelled and relinquished on provincial lands	73	31,152.82
Coal leases cancelled and relinquished on school lands	12	703.82
Fees and rentals collected	$117,741.55	
Royalties collected	186,691.23	
Total	$304,432.78	

MISCELLANEOUS

	Number	Acres
Permit to prospect for salt	1	6,721.68
Permits to collect bitumen	2	.....
Permit to remove glauber salts	1	22.5
Leases to dredge in river beds	4	12 miles

STATEMENT OF BUSINESS TRANSACTED WITHIN THE EDMONTON DISTRICT 1935-36

	Number	Acres
Applications for petroleum and natural gas leases	12	1,600
Applications for petroleum and natural gas permits to prospect	3	65,151
Applications for coal-mining leases	14	620
Applications for dredging leases	2	10 miles
Applications for quarrying leases	11	.....
Domestic coal permits issued	11	.....
Quartz mining claims granted	16	.....
Quartz mining certificates of work issued	7	.....
Quartz mining certificates of partnership issued	1	.....
Placer claims granted	7	.....
Bar-digging permits issued	1	.....
Sand, stone and gravel permits issued	9	.....
Fees and rentals collected	$5,451.10	
Royalties collected	209.00	
Total	$5,660.10	

All mineral rights are disposed of by lease, grant or permit for a limited period of time and are not sold. Revenue is derived from fees, rentals, bonuses, royalties and dues.

Petroleum and Natural Gas

Development of Leases.—Under the petroleum and natural gas regulations expenditures incurred in actual development of an area acquired under lease may be accepted in satisfaction of rentals, which should otherwise be paid in cash. Under this provision, rentals due to the amount of $487,832.50 were satisfied by such expenditures, and so reduced the revenue of the Division to that extent. The total rental revenue in cash together with expenditures accepted in lieu of rental of petroleum and natural gas rights amounted to $599,140.90 for the year.

Disposal by Public Tender.—The regulations provide for the disposal by public tender of petroleum and natural gas rights in areas comprising cancelled leases and this method of disposal has resulted in payment to the Department of the sum of $864.25 as bonus during the year.

Number and Area of Leases.—On October 1st, 1930 18,868 leases were transferred to provincial administration comprising 2,460,962.48 acres. Since that date 2,048 leases comprising 421,604.96 acres have been issued by the Alberta Government.

During the year under review 723 leases were issued, comprising 74,783.32 acres, bringing the total number now in force to 3,437, which cover an area of 664,440.76 acres.

Prospecting Permits.—Regulations governing the issue of permits to prospect were amended by an order in council which became effective in January, 1936, and which resulted in great activity in the receipt of applications. Under the

new regulations 10 permits to prospect, comprising 226,068.83 acres, were issued. These, added to the 44 permits covering an acreage of 14,367.50, previously in force, made a total at the end of the year of 54 permits comprising an area of 240,436.33 acres.

Coal

All coal rights are now disposed of under terminable leases at an annual rental of $1.00 per acre and subject to a royalty of 5c per short ton on production.

Leases Issued.—During the year the following coal-mining leases were issued:

	Number	Acres
Provincial lands	20	1,361.65
School lands	5	218.68
Total	25	1,580.33

The total number of coal-mining leases in force at the end of the fiscal year was 433, comprising 119,280.73 acres. During the year, 3,867,139 tons of coal, subject to royalty, were mined, as compared with 3,233,589 tons of royalty-bearing coal mined in the previous fiscal year.

Coal for Domestic Use.—Permits to mine coal for domestic purposes only totalled 29 for the year. A fee of $1.00 is charged for a permit of this nature with royalties based at 10c per ton. The maximum area of such a permit, which terminates on the 31st of March in each year, is one acre. The amount of coal extracted under these permits for the year was 534 tons.

Requirements for New Leases.—The locations of coal-mining leases as shown on all applications are inspected and reported upon. New leases are granted only if required for the continuation of existing operations or in the few instances where the locality in which the area applied for is so situated that it cannot be supplied economically from an existing mine.

The following statement shows the amounts which have been collected on account of royalty on coal mined from lands in the Province of Alberta during the past 29 years:

Fiscal Year	Royalty Paid	Fiscal Year	Royalty Paid
1907-1908	$ 7,621.67	1923-1924	210,389.53
1908-1909	5,322.39	1924-1925	148,979.10
1909-1910	153,559.98	1925-1926	188,277.94
1910-1911	218,932.88	1926-1927	218,150.10
1911-1912	104,894.55	1927-1928	231,757.96
1912-1913	142,997.79	1928-1929	254,616.27
1913-1914	147,198.75	1929-1930	248,083.71
1914-1915	104,489.77	1930-1931*	105,126.51
1915-1916	67,190.17	1931-1932	145,170.33
1916-1917	149,447.82	1932-1933	143,800.01
1917-1918	144,634.75	1933-1934	193,527.82
1918-1919	175,687.66	1934-1935	176,122.43
1919-1920	181,641.80	1935-1936	186,691.23
1920-1921	190,545.80		
1921-1922	185,436.88	Total	$4,531,729.43
1922-1923	171,723.83		

*Under federal administration prior to October 1st, 1930, and under provincial following that date

Bituminous Sands

Applications for a location under the bituminous sand regulations can be considered only if the applicant has submitted satisfactory evidence that he has the right to use a process for the recovery of oil or other hydrocarbons from such sands, such process, in the opinion of the Minister, giving promise of developing a successful industry. On compliance with this stipulation the applicant may be granted a permit to proceed with development. After the process of extraction has been proven and established, a terminable lease may be granted.

At the close of the year one permit, comprising 9,718 acres, and 2 leases, covering 1,912 acres, were in force.

An area approximating 15,000 square miles has been reserved in the general area of McMurray for the purpose of bituminous sand development. This area possesses only a light overburden and is considered to be of the greatest richness.

Quartz Mining

Quartz mining claims are granted subject to an annual expenditure for development work. When this work has progressed sufficiently and the claim has been properly surveyed, a lease is issued for a period of twenty-one years, the products recovered being subject to payment of royalty.

During the year, 16 quartz mining claims were recorded. There are now in force 4 quartz mining leases comprising an area of 181.8 acres.

Quarrying

Quarrying leases on Crown lands are issued under the regulations for limestone, granite, slate, marble, gypsum, marl, gravel, sand, clay, volcanic ash or any building stone.

At the close of the year a total of 22 such leases, covering an area of 1,123.54 acres, were in operation.

Dredging

Eight leases to dredge for minerals in the beds of rivers were active during this period. These leases comprise portions of the beds of the McLeod and Athabaska rivers and cover a total river stretch of 32 miles.

Salt

Regulations have been made for the issue of permits to explore and prospect for salt, the property of the Crown. They have also been made for the disposal of salt rights, the product to be recovered by the usual process of drilling and which may not be secured by mining.

One permit to prospect, comprising 6,721 acres, was issued during the year, and is still in force.

Special Permits

Under this heading a special permit was issued for the removal of glauber salts which occurred in a comparatively pure condition and with a natural accumulation in certain sloughs and shallow lakes.

Two special permits were granted for the collecting of bitumen issuing from two northern wells. The rights were disposed of by public tender to the tenderer offering the highest royalty.

During the year a large number of requests for information on the Province's natural resources and questions dealing with problems associated with their development were received. These could not be adequately answered by printed reports, maps and other published material, considerable investigation being frequently necessary for the attention of individual cases.

Technical Division

REPORT OF THE SUPERINTENDENT OF THE TECHNICAL DIVISION, T. W. DALKIN

Notifications (*Land Patents*).—The outstanding feature of the fiscal year ending March 31st, 1936 was the number of legal descriptions prepared for notifications (land patents), with the result that the largest total area of land was patented since the transfer of the natural resources to the Province. The number of noifications issued was 2,965, covering a total area of 433,529.126 acres, together with 83½ subdivision lots in townsites. By way of comparison 2,006 notifications comprising an area of 324,611.398 acres and 90 subdivision lots were issued during the previous year.

The various school boards were most active during the year in making applications for notifications covering school sites, due to the fact that the regulations were amended on January 2nd, 1935 by Order in Council, No. 14/35, whereby such notifications could be procured free of charge. Previously the policy adopted by the Dominion Government was followed whereby lands for school sites were disposed ot at the rate of $10.00 per acre. As numerous complaints were received from the school boards, expressing inability to pay due to the economic situation, it was deemed advisable to make arrangements for the passing of the Order in Council above referred to.

Several applications held in abeyance from the Canadian Pacific Railway Company for rights of way were disposed of under the Deputy Minister's new ruling of the 31st of August, 1935, wherein the usual $10.00 notification fees were waived when the Company was entitled to free grants for rights of way.

Five of the notifications covered releases of habendum clauses.

Hereunder are set out in detail the nature of the grants and the numbers and areas of same:

Nature of Grant	Notifications	Area (acres)
Homesteads	1,597	250,629.72
Second homesteads	964	150,874.666
Soldier grants	139	21,742.25
School lands sales	74	5,986.81
Sales (including lots in subdivisions)	93	2,121.547
Special grants	87	728.463
Pre-emptions	6	959.00
Exchange of lands	1	315.00
Purchsed homesteads	1	160.00
Canadian Pacific Railway	3	11.67
Total	2,965	433,529.126

Details of Sales in Subdivisions	Notifications	No. of Lots
Canmore	19	19
Walsh	5	10
Jarvie	2	3
Manyberries	1	1
Coleman	1	1
Seven Persons	1	2
Maple Leaf (7242 A.I.)	1	2
Maple Leaf (6224 Y)	1	1
Lethbridge (950 AQ)	1	½
Subdivision in n.w. of section 10, township 24, range 1, west of the 5th meridian (3940 L)	1	....
Glenbow (5712 A.B.)	1	43
McMurray (616 A.O.)	1	1
		83½

Homestead Entries.—During the year 1,329 homestead entries, 186 second homestead entries and 13 soldier grants were checked in as far as the areas

were concerned. In some cases such areas were affecetd by railway rights of way, roadways, power transmission lines, pipe-lines, and other previously alienated parcels of land. When these homestead entries and soldier grants were affected by rivers the fordableness of such rivers were investigated in order that entries where possible could be granted to the land in the quarter sections lying on both sides of the rivers.

Revested Soldier Settlement Board Lands.—Only a small area of land under this heading was revested in the Prvoince as revealed by the following figures: Privy Council, No. 157, January 21, 1936, area—160 acres, Privy Council, No. 592, March 12th, 1936, area—797 acres.

Tax Recovery Lands.—No tax recovery lands were transferred this year from the Department of Municipal Affairs for administration by this Department. It might be mentioned, however, that three complete sets of townsite plans showing all tax recovery lands in subdivisions transferred to this Department were prepared for the Provincial Land Agencies and for general office use.

Roadways.—Forty plans were filed by the Department of Public Works with this Division affecting 160 parcels of Crown land. Some of these surveys affected lands alienated by sales, etc., and in such cases quit claims were obtained for the payment of compensation exacted. In order to permit of the filing of these plans of new roadway surveys it was necessary in some cases to abandon the old roadways previously surveyed.

One of these plans covers the revision of the provincial highway between the south boundary of Elk Island Park and the north boundary of the Cooking Lake Forest Reserve. As the Park is under the jurisdiction of the Dominion Government and the Reserve is under the Provincial Government, it is necessary that certain areas be selected from the Dominion to be transferred to the Province and added to the Reserve. In exchange, several areas are to be transferred from the Reserve to the Dominion to be included in the limits of the National Park. The readjustment of these boundaries is now proceeding.

Railways.—In order to complete the railway right of way records, the balance of the railway plans was received from Ottawa and duly recorded and indexed upon the maps of this Department. Other railway rights of way plans were received direct from the railway companies and filed. Included with such plans were applications for bridge sites over the Bow River, the Kananaskis River and the Red Deer River.

A copy of the Board Order was received from the Board of Railway Commissioners dealing with the abandonment of operations of the Canadian National Railways' right of way between Peace River Junction (Mile 31) and Darson Junction (Mile 63.6), a distance of 32.6 miles.

Transmission Lines.—Applications for licenses of occupation were received from and granted to the Calgary Power Company, Limited and the Canadian Utilities, Limited, covering power transmission lines.

Miscellaneous.—Several applications were received for licenses of occupation covering pipe-lines, logging roads, gas beacon sites (Minister of National Defence) and leases for reservoir sites.

Applications were received from the Department of Railways and Telephones for the issuance of orders in council to protect telephone leads to the Department due to the relocation of certain roadways. Applications were also received from religious sources, service groups, etc. for the leasing of lands around the shores

of Pigeon Lake with the result that a lease was issued in favour of the Synod of the Diocese of Edmonton.

Grazing.—A large number of outstanding grazing applications was dealt with and legal descriptions were prepared for approximately 350. Legal metes and bounds descriptions totalling 290 were prepared for cultivation and grazing leases and approximately 44 for lands belonging to the School Lands Endowment Fund. During this year the Department began issuing leases on lands given up by the recession of waters of lakes with the result that 260 such descriptions were prepared.

New Surveys.—Owing to the location of several squatters and the demand for further homestead land, instructions were forwarded to the Director of Surveys for the subdividing of the following lands: west half of township 69, range 6, west of the 6th meridian; part of township 70, range 6, west of the 6th meridian; part of township 76, range 12, west of the 6th meridian and part of township 76, range 13, west of the 6th meridian.

For a great many years the Dominion Government has been dealing with a squatter situation consisting of many families located on unsubdivided lands belonging to the School Lands Endowment Fund at McLennan. A request was made for a plan showing the location of these homes, which plan is now on file in this Division.

A resurvey was also made of the north-west quarter of section 72, township 76, range 18, west of the 5th meridian, approved on the 5th of December, 1935. New plans covering surveys executed by the Dominion Government were released during the year and covered the twenty-fifth base line across ranges 15, 16, 17 and 18, west of the 5th meridian, and the twenty-sixth base line across ranges 15, 16, 17 and 18, west of the 5th meridian.

New Maps.—A new map was issued of the Edmonton Land District, scale twelve and one-half miles to the inch. Copies of this issue totalled 4,000 and were received from Ottawa where it was published in collaboration with the Surveyor-General. Another new map of the Province, scale thirty-five miles to the inch, was also issued showing the highways. This map was published by the Surveyor-General in conjunction with this Division and 5,000 copies were received.

Owing to the general demand it was found necessary to re-issue the map of the Province, seventeen and one-half miles to the inch, published by Messrs. Bulman Brothers, Winnipeg. A commitment was put through at the end of the fiscal year for 3,000 copies of this map, 1,000 copies to be lithographed in black and blue, and 2,000 copies showing additional information regarding the highways.

There has been a particularly heavy demand for the seventeen and one-half mile map with the result that it has been found necessary to look forward to still another reissue at an early date. Work is at present proceeding in order to bring the next publication of this map up to date in as far as new towns, post offices, railways and abandonments of same are concerned.

In connection with the issuance of new maps it is interesting to note that the Surveyor-General at Ottawa has now in course of preparation a map of the Province of Alberta, scale sixteen miles to the inch. It is understood that it is the intention to issue this in two sheets, the southern one to be given prior attention. A similar scale map will be made available by the Dominion Government covering Saskatchewan and Manitoba.

Geographical and Topographical Maps.—Mainly due to the mining and oil activity, there is an increasing demand from the public for these maps.

Soil Survey Maps.—The preliminary soil survey of the Peace River, High Prairie and Sturgeon Lake areas, published by the University of Alberta, was received and indexed on the soil classification map.

Geological Records.—Various sets of maps and reports issued by the Dominion Bureau of Geology and Topography, Department of Mines and Resources, are now on file in this Division. These, in addition to the reports and maps issued by the Research Council of the University of Alberta, make a very comprehensive set of geological records.

Chipewyan Indian Reserve.—Representations have been made to this Department by the Department of Indian Affairs at Ottawa for 52,398.20 acres, more or less, of provincial lands which are required for Indian Reserves for the use of the Chipewyan band of Indians at Fort Chipewyan. Plans of these areas have been received and recorded in this Division, and it is believed that these representations on behalf of the Indians will be favourably considered, thus necessitating the preparation of a memorandum to the Executive Council requesting the issuance of an Order confirming the areas in question as Indian Reserves.

Writing-on-Stone (Provincial Park).—For some considerable time there has been an agitation for the dedication for park purposes of a certain area in sections 35 and 36, township 1, range 13, west of the 4th meridian, containing 795.80 acres, more or less, with the result that on the 31st of August, 1935 an Order in Council was passed, No. 1018/35, transferring the control of this area to the Provincial Parks Board.

Transfer of Lands from Ottawa.—Correspondence is still being carried on with the Dominion Government regarding certain areas to be transferred from the Dominion to the Province, and in this connection it is noted on the 13th of March, 1936 P.C. No. 613 was passed by the Dominion Government transferring the former Mounted Police Reserve at Macleod to the Province. As the Dominion Government wishes to retain certain interests at this point, satisfactory arrangements are being made.

Forestry.—The nucleus of a set of forestry records was prepared for the Calgary Forestry Office showing topography of the timber berths and grazing leases. A considerable amount of data has been gathered by the forest rangers for the forest reconnaissance records which have been compiled in this Division showing the types, quality and quantity of timber. Many maps have been prepared of the Crowsnest and Bow River Forest Reserves and lands immediately adjoining, showing the ranges and alienation of the lands in order to permit an investigation of the grazing records in these areas.

General.—An unusual amount of drafting and mathematical computations was executed during the past year. Of interest in this class of work were the various maps, charts and graphs prepared for the Attorney-General's Department, necessitated by the oil investigation undertaken by Mr. Frawley, solicitor of that Department. In addition to undertaking the drafting for all the Divisions and Land Agencies of this Department and the general public, assistance was given where possible in co-operating with certain other Departments in supplying maps, sketches and plans covering a variety of subjects.

Petroleum and Natural Gas

REPORT OF THE DIRECTOR OF PETROLEUM AND NATURAL GAS, C. W. DINGMAN

Interest regarding the development of Alberta's petroleum and natural gas resources showed a considerable increase during the fiscal year under review.

Exploratory drilling in unproven areas was carried out on a larger scale and evidence, obtained from the production of wells on the west flank of Turner Valley, renewed the interest in that area to a considerable extent. Wells drilling at the end of the year were being watched very carefully with a decided confidence that an area producing much more oil per volume of gas would be opened up.

With this return of activity it is quite evident that if the wells now drilling in this area are successful in encountering production many wells will be drilled and the search for oil in Alberta will receive a considerable impetus.

Amendments to the regulations under which leases on provincial lands are held, assisted materially in the renewal of this interest. An important change was in the regulation setting out the expenditures allowable in lieu of rentals. Another was a clause providing for the unitization of royalties over an area unitized in other respects by the owners or lessees.

The first large unitization scheme completed in Alberta was that upon which a site had been chosen and at the close of this period a rig was being erected for the drilling of the Arca well. A considerable amount of geological survey work, followed by a seismic survey, was done in this area and a unitization scheme was drawn up whereby all the owners of petroleum and natural gas rights within the area pooled their interests in production to be obtained.

The advantages of unitization are many, the main one being that with the field under unit control, drilling can proceed in an orderly manner according to data obtained and the field development carried out with a view to recovery of the greatest amount of oil or gas at the least cost and with regard to available markets.

The great difficulties in effecting conservation in Turner Valley and the tremendous waste not only of the recoverable petroleum products but also in the drilling of a great many more wells than necessary could have been entirely obviated if the field had been under unit control.

Last year's report showed that the greater part of Alberta's city and town population is now served with natural gas. During the year two tests were drilled for gas to serve towns now without that utility. One near Vegreville gave negative results, and the other near Vermilion leaves possibilities at that point unproven. The well started near Cardston made little progress during the period but remains as a prospect at a depth of 2,680 feet. These three wells cover the total of prospects intended solely for gas supply.

In the search for new oil fields, progress was made in three wells near Lundbreck in the "Watson Structure" and operations were continuing in two of them at the end of the year.

Near Pincher Creek, the Weymarn well was given a further test to a considerably greater depth. Some indications of oil were reported, but production had not been attained when operations were suspended at 5,668 feet.

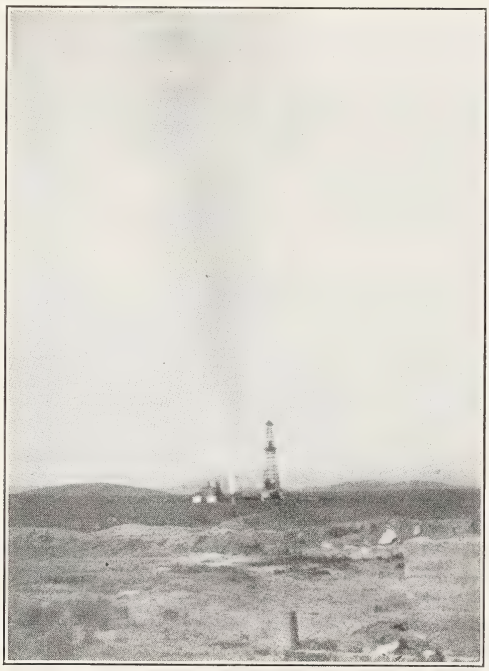
The Hunter Valley test in the Foothills west of Olds was continued and drilling was progressing at 5,474 feet by the end of March.

New Valley Well, No. 1, east of the north end of Turner Valley, was resumed after standing idle since 1928 and made good progress. The Ranchmen's well near Aldersyde has had sufficient indications of oil to encourage prospecting in the Alberta geosyncline, east of Turner Valley. Resumption of drilling at the New Valley well was one of the operations undoubtedly affected by the indications at Ranchmen's.

Near Comrey, in the south-east corner of the Province, a well was under way and had made 3,206 feet depth at the end of March. This was an effort to take advantage of conditions which appeared favourable for oil accumulation to the north-east of the Sweet Grass Hills.

A third test was started near Twin River and the Terminal well near Del Bonita was nearly complete with a flow of gas, carrying some oil, issuing from the Madison limestone. In February, 1936 a well in the Cut Bank Field, Montana found a large oil horizon in the Sunburst sand after passing it with rotary tools. Terminal had also passed this horizon with rotary tools and consequently perforating of the casing was tried at this horizon for a further test but without positive results.

In Turner Valley drilling progress was at a low point. Production from gas-naphtha wells in the newest southern part of the field was dropping rapidly and general field pressure was being dissipated. Royalite, No. 26, a distant offset to Model, No. 1, was completed as a big gas and naphtha producer,



Century well blowing for annual test, south of Turner Valley

and Royalite, No. 27, a closer offset to Model, No. 3, was also drilled to completion. Model, No. 3, some distance south of Model, No. 1, was drilled to completion in less than six months. All three of these wells are in an area that had not been closely drilled.

In the southern part of the field, Publix drilled the last 50 feet for completion as a small gas-naphtha producer; British Dominion, No. 4, started producing but continued drilling deeper and was obtaining a product rather heavier than naphtha.

Highwood Sarcee, No. 2 was started as the most southerly well in the field. Renfrew, No. 1 got into mechanical difficulties. Union Freehold, No. 1 had serious mechanical trouble but successfully got out of difficulties and was near to production by the end of March.

The Turner Valley Royalties well, after being suspended for ten months, resumed operations in May, 1935, apparently encouraged by the performance of nearby Century Royalties, No. 1. While the purchasers of oil from Century classed it as discoloured crude naphtha, it gave some evidence of containing fractions not volatile at temperatures likely to be encountered in the limestone and, therefore, at least a part of its oil was in liquid phase when in its natural container. It had appeared for some time that the oil from most of Turner Valley limestone wells had been in a vapour state while in the natural container. Century production, furthermore, did not show the very rapid decline noted at most of the vapour phase wells.

It is not entirely possible to distinguish between production of vapour phase and liquid phase oil from Turner Valley, for there are wells which under certain operating conditions will produce 73° naphtha, which is highly volatile, and under other conditions will produce a crude of 40° to 50°. On segregating all of the production from several wells which are known to yield crude from the limestone, the following comparison for this fiscal year and for the previous one is given, quantities being in barrels:

	Crude	Separator Naphtha	Plant Recoveries	Limestone Total
1934-35	92,141	692,144	407,941	1,192,226
1935-36	137,287	528,089	531,117	1,196,493

It will be seen from the above table that without increased plant recoveries and liquid phase oil, there would have been a drastic decrease in total production.

During the year, quotas for gas withdrawal were discontinued. No penalties had ever been imposed for violation of quota and as a result those who faithfully observed the quotas were put to a disadvantage by others who had paid no attention to them. It never appeared that vapour phase wells obtained more oil as a result of exceeding quotas, but their excessive withdrawals hurt their neighbours as well as themselves. Statistical conclusions suggest that when gas is drawn too rapidly, much of the oil held in it as a vapour condenses in the limestone and much of the condensed oil fails to reach the well. Due to offset production races and the almost universal overdrawing of the wells, general depletion of gas reserves has proceeded at a very rapid rate particularly in the area at the south end of the field and to some extent at the north end. Continued supply of natural gas for Calgary, Lethbridge and the towns between would be threatened but for a partial reserve created in an area owned by a single operator, where most of the wells have been voluntarily closed in.

Pressure tests and test of flow at ⅔ of the closed pressure were made at all Turner Valley wells in August, 1935. The maximum pressure drop at a well in the south end was 360 pounds in a year. In an area which had not been drawn on for about eight months, the pressure was greater than it was a year

earlier by amounts varying between 8 and 78 pounds. This was interpreted as showing equalization of pressure within the area.

Total gas withdrawn from the limestone to the end of March, 1936 is estimated at 807,360,000 Mcf.,* 90,250,000 Mcf. representing the amount withdrawn during the year under review.

Repressuring of Bow Island field by pumping gas from Turner Valley into the reservoir sand continued throughout the year save for a period in August, when it is customary to allow equalization for long enough to draw conclusions as to results that are being obtained, and to overhaul equipment. During most of February, demand for gas throughout the extremely cold weather taxed pipe line capacities to the limit and repressuring was discontinued for the greater part of the month but was resumed as soon as the demand for gas dropped to normal. At the end of March the pressure was about 504 pounds.

Longview well blowing for annual test, south of Turner Valley

Very little gas was drawn from Foremost, the only withdrawals taking place in February when demand was heaviest. Field pressures were not reported to the Division.

Medicine Hat wells in June showed a weighted mean pressure of 410 pounds, an increase of two pounds in a year. This increase is so small as to leave little room for comment. It may have been due in part to the difficulty in observing surface pressure closely enough, equalization from undrawn areas proceeding at a more rapid rate than gas was withdrawn or the replacement of gas by water.

Redcliff mean pressure in the summer of 1935 was 391 pounds, a decrease of fifteen pounds in the year.

Viking weighted mean pressure in the fall of 1935 was 591 pounds, a drop of 14 pounds in the year. Kinsella field was not drawn on and not tested. Fabyan wells, supplying gas to Wainwright, were not tested for closed pressure.

*Mcf.—Thousand cubic feet.

The bituminous sands of the Athabaska River have for many years been known as a potential source for heavy petroleum products. When the demand for such products has reached a stage where these deposits can compete with similar ones produced elsewhere, it is fully to be expected that their exploitation will become an important industry. Interests from the United States believe that the time for such exploitation is so near that leases have been acquired from the Dominion Government together with a reservation from the Province of Alberta and it is understood that a plant will be erected in 1936 for separation of sand from the bitumen.

OIL PRODUCTION FOR FISCAL YEAR

Quantities in Barrels of 35 Imperial Gallons

Turner Valley, limestone (naphtha and light crude)	1,196,493
Turner Valley, other (light crude)	17,220
Red Coulee-Border, light crude	20,051
Wainwright, heavy crude	13,958
Skiff, heavy crude	1,874
Total	1,249,596

VALUE OF PRODUCTION 1935-36

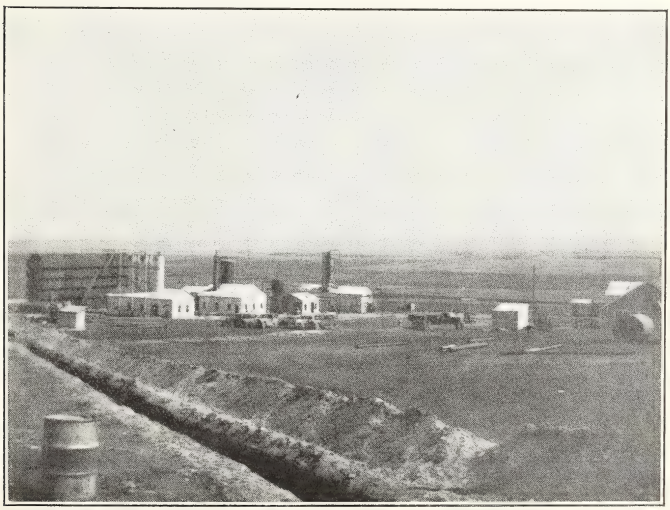
Turner Valley, limestone	$2,731,246.00
Turner Valley, other	34,784.00
Red Coulee-Border, light crude	25,064.00
Wainwright, heavy crude	12,562.00
Skiff, heavy crude	937.00
Total	$2,804,593.00

SUMMARY OF OIL PRODUCTION IN ALBERTA

By Fiscal Years

Period	Turner Valley Limestone	Other	Red Coulee	Wainwright	Ribstone	Skiff	Total
*1914-34	6,805,671	383,835	191,951	59,058	15,074	5,914	7,461,503
1934-35	1,192,226	19,827	20,519	13,876	.....	510	1,246,958
1935-36	1,196,493	17,220	20,051	13,958	.....	1,874	1,249,596
Totals	9,194,390	420,882	232,521	86,892	15,074	8,298	9,958,057

*Under federal administration prior to October 1st, 1930, and under provincial following that date



British American Plant, south of Turner Valley, during construction

SUMMARY OF OIL PRODUCTION IN ALBERTA

By Calendar Years

Period	Turner Valley Limestone	Other	Red Coulee	Wainwright	Ribstone	Skiff	Total
*1914-33	6,483,647	376,499	186,245	57,883	15,074	5,914	7,125,262
1934	1,210,766	21,896	20,989	11,779	.....	510	1,265,940
1935	1,208,321	18,691	20,536	14,638	.....	1,564	1,263,750
1936—3 months	291,656	3,796	4,751	2,592	.....	310	303,105
Totals	9,194,390	420,882	232,521	86,892	15,074	8,298	9,958,057

OIL PRODUCING WELLS IN PROVINCE

1935-36

	Producing	Closed in	Total
Turner Valley—oil and gas	80	21	101
Turner Valley—light crude only	8	....	8
Red Coulee	8	....	8
Wainwright	6	3	9
Skiff	....	1	....
	102	25	127

GAS WELLS NOT INCLUDED WITH OIL WELLS

	Producing	Closed in	Total
Medicine Hat	46	....	46
Bow Island	....	11	11
Foremost	....	6	6
Milk River area	1	2	3
Viking	23	....	23
Kinsella	....	3	3
Fabyan	2	....	2
Brooks	5	....	5
Wetaskiwin	1	....	1
	78	22	100

COMPARATIVE STATEMENT OF FOOTAGE DRILLED IN WELLS

Fiscal Year	Turner Valley	Foothills West of Turner Valley	Rest of Province	Total
*1930-31	112,043	14,373	88,544	214,960
1931-32	37,695	2,173	36,505	76,373
1932-33	13,812	813	21,495	36,120
1933-34	65,773	2,417	14,183	82,373
1934-35	70,555	4,850	15,163	90,568
1935-36	24,383	6,120	25,999	56,502
Totals	324,261	30,746	201,889	556,896

GAS USED IN ALBERTA

1935-36

Quantities in Mcf.†

From Foremost		70,911
From Turner Valley:		
Calgary-Lethbridge	6,968,545	
Refinery	897,023	
For storage and fuel	1,488,166	
Bow Island town	47,954	
Field use	2,840,148	
		12,241,836
Brooks		54,494
Edmonton and towns		3,200,293
Wainwright, town	105,695	
field use	23,500	
		129,195
Medicine Hat		2,131,224
Redcliff		683,201
Exported to Montana		117,256
Red Coulee, field use		39,034
Miscellaneous, field use		7,500
Total		18,674,944

†Mcf.—Thousand cubic feet.

*Under federal administration prior to October 1st, 1930, and under provincial following that date

ESTIMATE OF WITHDRAWALS AND WASTE OF GAS FROM TURNER VALLEY

Fiscal Year Periods

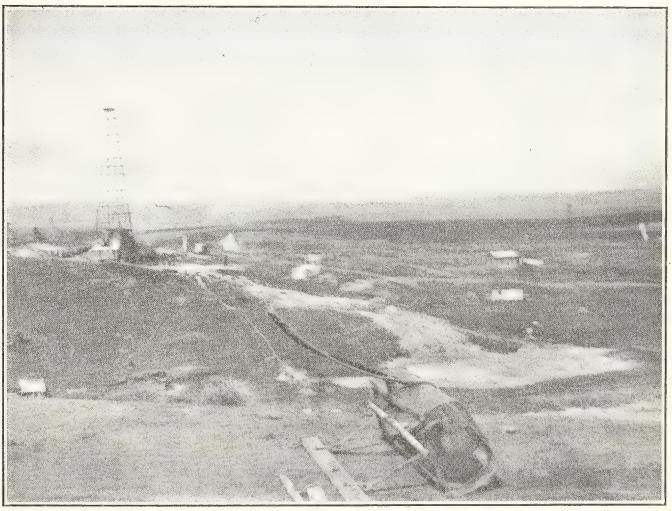
	Mcf.* Drawn	Mcf.* Wasted
To end of March, 1934	629,550,000	537,610,000
1934-35	87,560,000	76,440,000
1935-36	90,250,000	78,020,000
Total to end of March, 1936	807,360,000	692,070,000

APPARENT DEMAND FOR OIL IN ALBERTA

Calendar Year, 1935

		Barrels
In store, beginning of year		859,800
Produced in Alberta		1,263,750
Imports, lubricants	18,859	
Imports from U.S.A., direct	1,982,487	
Imports via British Columbia	56,188	
		2,057,534
Total to account for		4,181,084
Exports, crude	448,867	
Exports, refined	433,263	
		882,130
Lubricants (as imported)		18,859
Fuel oil sales, taxed		1,355,510
Refining and handling losses, untaxed oil, etc., by difference		981,891
On hand, end of year		942,694
Total accounted for		4,181,084

*Mcf.—Thousand cubic feet.



Looking west from C. & E. Longview well, south of Turner Valley

These figures have been brought together by co-operation with the Provincial Secretary's Department and Dominion Customs. It should be noted that kerosene, and distillates suitable for diesel engines and tractors but of a gravity lower than gasoline, were not taxed. It is, therefore, impossible to distinguish between refining losses and such distillates but a fair indication is given as to the magnitude of oil demand. Imports entered through Customs for con-

sumption in Alberta were greater than shown above by over 200,000 barrels but owing to the fact that some oil entering through Alberta ports of entry goes on to other provinces, the figures of the Provincial Secretary have been used, excepting for lubricants.

Forestry

REPORT OF THE DIRECTOR OF FORESTRY, T. F. BLEFGEN

The fiscal year 1935-36 dated a further broadening of Forest Service responsibilities. Following the abolition of the Edmonton Agency the various administrative duties of that agency were taken over by each division of the Department of Land and Mines directly concerned. The administration of all matters pertaining to timber on provincial lands passed to the Forest Service and the staff formerly employed by the Edmonton Agency on timber administration was transferred to the head office staff of the Forest Service. The change is a logical one in that it places under one division of the Department all timber administrative matters in so far as provincial lands are concerned and this together with the former change which brought all forestry field work under the Forest Service should result in uniform policy, methods and procedure throughout the Province.

During the year the timber industry showed a slight improvement over the preceding year both as to production and markets. The feature which is lacking in order to properly re-establish operations is a resumption of building construction. The Department has been cognizant of the difficulties of the past few years and has endeavoured to meet the situation so as to help the industry, the farmer and the settler. In doing so, every effort has been made to so manage the Province's forest estate that future general development will not be handicapped by unwise provisions to meet present conditions.

Considering fire prevention and its relation to forest protection, the year was an outstanding one. It is probable that this Province will never again experience a fire season during which fire destruction and fire-fighting cost will be so low. The fact that such a satisfactory year may be recorded is not explained by any large improvement in protection measures though in south-western Alberta the normal field staff did meet and deal with a hazardous period very successfully. Aside from this area, the explanation is due to regular rains over wide-spread areas together with vigilance on the part of the field staff. The results while exceedingly satisfactory do not point to a permanent improvement and until definite steps are taken, having in view a general betterment of field organization, no such permanency in improvement can be expected.

Again an increase in field work is to be recorded, particularly regarding inspection work. Fortunately the timber inspectors were relieved of land subagency duties late in the year, permitting them to give their complete attention to forestry work. In the last few years the increase of inspection work has been enormous and has placed a heavy burden on the responsible officials. It has only been possible to meet the situation by an exceptional degree of activity on the part of inspectors and by using qualified rangers to assist on inspection work as the fire season permitted.

The forest nursery at the Oliver Institute has reached its maximum development under existing conditions. Further expansion is limited by the fact that land for tree nursery purposes is not readily available and also by the fact that the point has apparently been reached where further labour supply from the Institute is not to be expected. Under these circumstances and if the output of planting stock is to be further increased, it will become necessary to make other arrangements.

Forest Protection

The control of destructive agencies is one of the basic requirements of forest management. Advancing civilization has inevitably carried with it the threat of destruction to the forest. This is difficult to reconcile with present day and future requirements for the development of territory from its raw state to the point where it serves humanity to the utmost, which requires that the forests and the products thereof must enter into the economic plan extensively. It is apparent, however, that the broad importance of forest cover and of readily available forest products has not been realized by many individuals. Lacking this understanding, it is natural that little thought will be given to the welfare of this resource and explains why a degree of carelessness and thoughtlessness in the use of fire in and near forests has developed.

Fire Season.—A generous snowfall was recorded over all forested territory excepting the Cypress Hills and Crowsnest-Bow River regions. The spring season opened late accompanied by cool temperatures which retarded the growth of vegetation. The usual spring fire danger period was practically non-existent and was followed by a summer also accompanied by cool temperatures and, excepting in southern Alberta, regular and heavy rain storms. The most hazardous region was the Cypress Hills which escaped the storms of the western and northern areas. A danger period from the middle of July to the end of the fire season was experienced in this district.

In the southern part of the Crowsnest-Bow River Forest there were short periods of danger during which fires would have been difficult to control. Generally speaking, however, the danger was below normal in this region.

The situation over the rest of the Province was exceptionally favourable due to abnormal precipitation and due, although a heavy frost was recorded in mid-August, to the fact that the killing frosts did not come until later. The fall fire season did not develop into a dangerous one on account of excessive moisture.

Fire Prevention.—With conditions, as explained above, it will be evident that the clearing activities of settlers were greatly decreased, that the hazard from ground fires ignited during the winter was almost totally absent and that the dangers from unextinguished camp fires were not great.

The contact between the field staff and the public in various necessary directions was maintained and control of the entire situation made as effective as possible. The proclamation, prohibiting open camp fires in a defined area in south-western Alberta, was again in effect and provided good results due mainly to a fair degree of enforcement and a satisfactory response from the public.

The programme of improving popular camping grounds within the forest reserves was continued and, as a safety measure for the nearby forests and convenience to the public, it is an activity which should be greatly enlarged. The aim is to provide for safety measures to the extent that restrictions which would have the effect of greatly curtailing recreational activities will not be so necessary on emergent occasions.

The maintenance of fire preventive appliances on railway locomotives received satisfactory attention and over the majority of railway mileage through forested territory the rights of way were kept clear of débris and inflammable growth.

The co-operation received from all concerned with fire prevention has given the Forest Service vast encouragement and to those who have assisted in this way, either in the course of duty or as a purely voluntary contribution, it is desired to voice an appreciation.

BURNING PERMITS ISSUED, PROVINCE OF ALBERTA, 1935

By the Forest Service:			
Cypress Hills	.....		
Crowsnest	.....		
Bow River	1		
Clearwater	467		
Brazeau	9		
Athabaska	7		
By the staff of the Forest Reserves		484	
Edmonton	81		
Edson	132		
Athabaska	107		
Bonnyville	.....		
McMurray	24		
Slave Lake	200		
Grande Prairie	253		
Peace River	142		
By the staff of the Northern Alberta Forest District		939	
Sub-total		1,423	1,423
By Outside Agencies:			
Honorary Fire Guardians:			
Edmonton	163		
Edson	163		
Athabaska	79		
Bonnyville	60		
McMurray	3		
Slave Lake	180		
Grande Prairie	92		
Peace River	145		
Other Areas	13		
		898	
Fire Guardians in Municipal Districts		99	
Royal Canadian Mounted Police		259	
Sub-total		1,256	1,256
TOTAL			2,679

PROSECUTIONS AND CONVICTIONS
PRAIRIE FIRES ACT
1935

	Instituted by Forest Service	Instituted by other agencies	Totals
Number of prosecutions	2	2	4
Number of convictions	2	2	4

Fire prevention measures secured through the control of camping and travel activity within the forest reserves again showed good results, and this is evident when it is known that this activity exceeded that of previous years, that road conditions were good permitting extensive travel and that due to a somewhat dry season in south-western Alberta there was a distinct danger period.

Fire Detection.—The need for an enlargement of detection services has been emphasized for several years. It was reported last year that the Forest Service had completed look-out towers in an important timber area between the Brazeau and Athabaska rivers. These towers make it possible to provide for detection coverage over a large area just as soon as suitable communication has been arranged. The towers are not of any great value until such an arrangement has been completed and, with the present day development of two-way radio and wireless communication, the time has arrived to take immediate and definite action which would have in view the setting up of a detection service that will more nearly answer forest protection requirements.

Fire Suppression.—The season was probably the most favourable one ever experienced since forest protection measures were initiated. As such it does not provide for a basis of comparison with what may be expected in the future. The small amount of money actually spent on fire-fighting and the comparatively insignificant destruction which followed this year's forest fires can only be regarded

as mainly a result of favourable weather conditions. It will be evident this is so when it is pointed out that during the fire season the coverage in this Province and the various agencies employed in connection with forest protection are the same as those employed twenty to twenty-five years ago. There has been an improvement in staff efficiency, but it will be obvious, on examination, that the area over which it is desired to provide protection is altogether too large to be adequately dealt with by the existing staff.

During the year 97 fires were fought, 50 of these being Class A or under one-quarter of an acre and 31 being Class B or under 10 acres in extent, but four fires exceeded 500 acres. An examination of the statement showing the annual summary of fire losses will prove enlightening and will show that in a year such as the one just passed the staff is able to keep the majority of fires within very reasonable bounds.

The fire loss is estimated to be $5,768.00 and the total suppression costs including ranger service, that is, the services of the ranger when actually engaged on fire-fighting, amounted to $1,653.46. It will be a long time before this Province experiences just such a favourable year for forest protection.

Causes.—During the year conditions were not favourable for burning by settlers and this is reflected in the "Causes Statement." The principal source of fire was due to campers, who were responsible for a total of 41, followed by incendiary, 22, railways, 10, smokers, 9, and settlers, 8.

COMPARISON OF FIRE CAUSES BY PERCENTAGE

Causes	1931	1932	1933	1934	1935
Campers	23.7	52.8	38.9	35.4	42.3
Smokers	3.2	5.3	13.5	11.7	9.3
Settlers	21.9	17.1	17.4	17.9	8.2
Railways	6.6	4.5	2.8	5.0	10.3
Lightning	.6	2.6	5.2	7.5	1.0
Industrial Operations	1.9	1.1	1.7	4.2	1.0
Incendiary	15.1	8.2	11.8	11.2	22.7
Public Works	1.4	.5	1.4	1.3	1.0
Unclassified	1.5	1.6	....	2.5	2.1
Unknown	24.1	6.3	7.3	3.3	2.1

RAILWAY FIRE LOSSES
CALENDAR YEAR 1935

This statement deals only with fires burning on forested areas under the supervision of the Alberta Forest Service, and which started within 300 feet of the centre line of the railway right of way. In this defined territory no fires burned on the Canadian National or the Canadian Pacific Railways, all fires reported being on the Northern Alberta Railways.

Causes and numbers of fires:		
Railway causes—Locomotives	10	
Employees	....	
Sub-Total	10	10
Other causes—Campers and travellers	3	
Settlers	....	
Unknown	1	
Sub-Total	4	4
TOTAL		14
Number of acres burned:		
Slashing or old burn		33
Timber land		20
Young growth		....
Not forested		496½
TOTAL		549½
Loss:		
Timber		$187.50
Young growth		....
Forest products		....
Other property		....
TOTAL		$187.50

ANNUAL STATEMENT OF FIRES BY CAUSES, MONTHLY DISTRIBUTION, ETC., WITHIN FOREST RESERVES, ALBERTA—CALENDAR YEAR, 1935

Cause	Number						Damage	Area	Monthly Distribution												Prose-cutions	Convic-tions	Fires Inside Provincial Forests	
	A	B	C	D	Tot.	P.C.			Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.			No.	Area
								Acres																Acres
Camp-fires	3	....	....	....	3	25.0	.....		....	....	....	....	....	....	....	....	3	....	....	....	1	1	3	....
Smokers	3	1	....	....	4	33.4	$45.50	6	....	....	....	....	....	....	2	1	1	....	....	....	....	....	4	6
Settlers	....	....	....	....	....	....	.....		....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Railways	....	....	....	....	....	....	.....		....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Lightning	1	....	....	....	1	8.3	.....		....	....	....	....	....	....	1	....	....	....	....	....	....	....	1	....
Industrial Operations	1	....	....	....	1	8.3	.....		....	....	....	....	1	....	....	....	....	....	....	....	....	....	1	....
Incendiary	....	....	....	....	....	....	.....		....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Public Works	....	....	....	....	....	....	.....		....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Unclassified	1	1	....	....	2	16.7	.....	½	....	....	....	....	....	1	1	....	....	....	....	....	....	....	2	½
Unknown	1	....	....	....	1	8.3	.....		....	....	....	....	....	....	....	....	....	1	....	....	....	....	1	....
TOTALS	10	2	....	....	12	100	$45.50	6½	....	....	....	....	1	1	4	1	4	1	....	....	1	1	12	6½
Per cent.	83.3	16.7	....	....	100								8.3	8.3	33.4	8.3	33.4	8.3						

ANNUAL STATEMENT OF FIRES BY CAUSES, MONTHLY DISTRIBUTION, ETC., OUTSIDE FOREST RESERVES, ALBERTA—CALENDAR YEAR, 1935

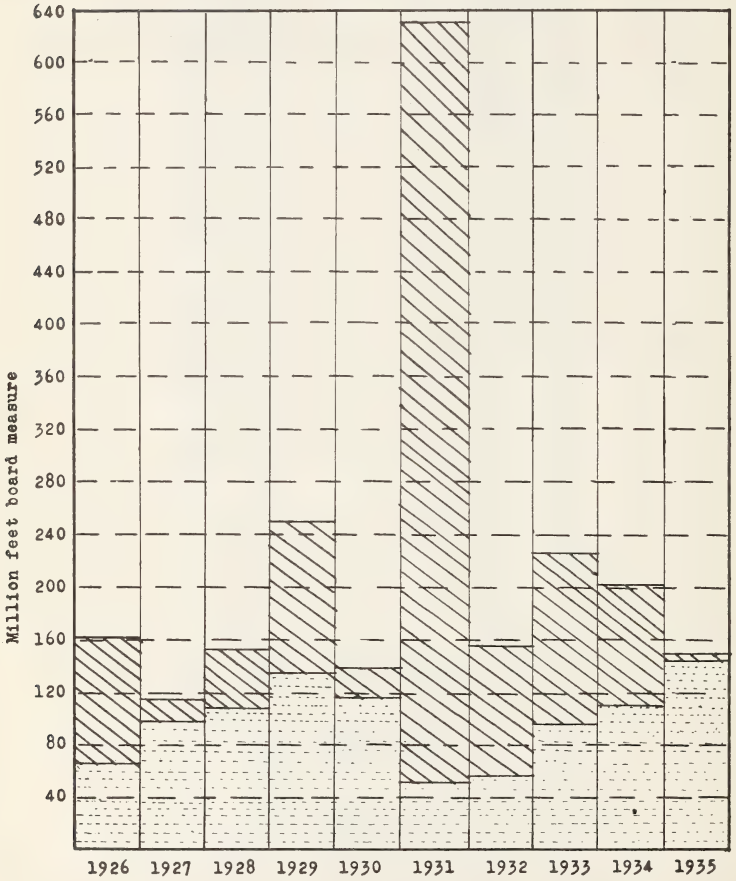
Cause	Number						Damage	Area	Monthly Distribution												Prosecutions	Convictions	Fires Outside Provincial Forests	
	A	B	C	D	Tot.	P.C.			Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.			No.	Area
								Acres																Acres
Camp-fires	28	6	3	1	38	44.71	$4,190.75	3,393	....	....	....	....	7	7	4	4	7	7	1	1	....	....	38	3,393
Smokers	2	2	1	....	5	5.88	7.50	40	....	....	....	....	2	....	1	1	1	....	....	....	....	....	5	40
Settlers	3	....	4	1	8	9.41	110.00	990	....	....	....	....	7	....	....	....	1	....	....	....	1	1	8	990
Railways	5	4	....	1	10	11.76	187.50	542½	....	....	....	....	6	3	1	....	....	....	....	....	....	....	10	542½
Lightning	....	....	....	....	....	....		.....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.....
Industrial Operations	1	16	4	1	22	25.88	1,224.25	1,347¼	....	....	....	....	8	12	....	....	1	1	....	....	....	....	22	1,347¼
Incendiary	....	1	....	....	1	1.18	2.50	½	....	....	....	....	....	....	....	....	1	....	....	....	....	....	1	½
Public Works	....	....	....	....	....	....	.....	.....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.....
Unclassified	....	....	....	....	....	....	.....	.....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.....
Unknown	1	....	....	....	1	1.18	.....	.....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	1	.....
TOTALS	40	29	12	4	85	100	$5,722.50	6,313¼	....	....	....	....	30	23	6	5	11	8	1	1	1	1	85	6,313¼
Per cent.	47.06	34.12	14.12	4.7	100				....	....	....	....	35.3	27.0	7.1	5.9	12.9	9.4	1.2	1.2				

ANNUAL STATEMENT OF FIRES BY CAUSES, MONTHLY DISTRIBUTION, ETC., WITHIN AND OUTSIDE FOREST RESERVES, ALBERTA—CALENDAR YEAR, 1935

Cause	Number						Damage	Area	Monthly Distribution												Prosecutions	Convictions	Fires Inside Provincial Forests		Fires Outside Provincial Forests	
	A	B	C	D	Tot.	P.C.			Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.			No.	Area	No.	Area
								Acres																Acres		Acres
Camp-fires	31	6	3	1	41	42.27	$4,190.75	3,393	....	....	....	....	7	7	4	4	10	7	1	1	1	1	3	.....	38	3,393
Smokers	5	3	1	....	9	9.28	53.00	46	....	....	....	....	2	....	3	2	2	....	....	....	....	....	4	6	5	40
Settlers	3	....	4	1	8	8.25	110.00	990	....	....	....	....	7	....	....	....	1	....	....	....	1	1	....	.....	8	990
Railways	5	4	....	1	10	10.31	187.50	542½	....	....	....	....	6	3	1	....	....	....	....	....	....	....	....	.....	10	542½
Lightning	1	....	....	....	1	1.03	.....	.....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	1	.....	....	.....
Industrial Operations	1	....	....	....	1	1.03	.....	.....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	1	.....	....	.....
Incendiary	1	16	4	1	22	22.68	1,224.25	1,347¼	....	....	....	....	8	12	....	....	1	1	....	....	....	....	....	.....	22	1,347¼
Public Works	....	1	....	....	1	1.03	2.50	½	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	.....	1	½
Unclassified	1	1	....	....	2	2.06	.....	½	....	....	....	....	....	1	1	....	....	....	....	....	....	....	2	½	....	.....
Unknown	2	....	....	....	2	2.06	.....	.....	....	....	....	....	....	1	....	....	....	1	....	....	....	....	1	.....	1	.....
TOTALS	50	31	12	4	97	100	$5,768.00	6,319¾	....	....	....	....	31	24	10	6	15	9	1	1	2	2	12	6½	85	6,313¼
Per cent.	51.55	31.96	12.37	4.12	100			.....	....	....	....	....	32.0	24.7	10.3	6.2	15.5	9.3	1.0	1.0	....	....	12.4	.10	87.6	99.90

GRAPH OF TIMBER DEPLETION, PROVINCE OF ALBERTA

1926 TO 1935, INCLUSIVE



During this period the total depletion was 2,184,667,170 feet board measure, of which 45.12% was utilized and 54.88% destroyed by fire.

Legend: Timber destroyed by fire

Timber utilized

FIRE CAUSES	Number of Fires: Class A	Class B	Class C	Class D	Total	Lands Affected: Ownership: Public, Acres	Private, Acres	Area: Total, Acres	Condition: Merchantable Timber, Acres	Cut-over Timber, Acres	Young Growth, Acres	Not Forested, Acres	Loss: Timber (Merchantable and Cut-over): Salvable: Saw-timber, M.ft.B.M.†	Salvable: Other, Cords	Salvable: Depreciation	Unsalvable: Saw-timber, M.ft.B.M.†	Unsalvable: Other, Cords	Unsalvable: Loss	Loss of Timber	Loss of Young Growth	Loss of Other Property	Total Loss	Suppression Costs: Ranger Service	Other Expenditure	Total	Burning Permits Issued
FIRES WITHIN FOREST RESERVES																										
Campers	3				3																		$ 3.75		$ 3.75	
Smokers	3	1			4	6		6			5	1					60	$ 45.00	$ 45.00	$ .50		$ 45.50	40.89	$ 27.75	68.64	
Lightning	1				1																		13.16		13.16	
Industrial Operations	1				1																					
Unclassified	1	1			2	½		½		½													9.01		9.01	
Unknown	1				1																					
TOTALS	10	2			12	6½		6½		½	5	1					60	$ 45.00	$ 45.00	$ .50		$ 45.50	$ 66.81	$ 27.75	$ 94.56	
FIRES OUTSIDE FOREST RESERVES																										
Campers	28	6	3	1	38	3,393		3,393	965½	115	579½	1,733				1,513	4,732	$3,467.00	$3,467.00	$ 723.75		$4,190.75	$ 204.26	$ 306.75	$ 511.01	
Smokers	2	2	1		5	40		40			3	37								7.50		7.50	15.15	5.00	20.15	
Settlers	3		4	1	8	700	290	990	100	35		855	160	375			225	110.00	110.00			110.00	68.99	613.21	682.20	
Railways	5	4		1	10	542½		542½	20	33		489½					250	187.50	187.50			187.50	61.23	114.68	175.91	
Incendiary	1	16	4	1	22	1,347¼		1,347¼	154	15	666	512¼		820	$210.00		164	43.00	253.00	436.25	$ 535.00	1,224.25	72.73	61.65	134.38	
Public Works		1			1	½		½			½									2.50		2.50	31.00	4.25	35.25	
Unknown	1				1																					
TOTALS	40	29	12	4	85	6,023¼	290	6,313¼	1,239½	198	1,249	3,626¾	160	1,195	$210.00	1,513	5,371	$3,807.50	$4,017.50	$1,170.00	$ 535.00	$5,722.50	$ 453.36	$1,105.54	$1,558.90	
FIRES WITHIN AND WITHOUT FOREST RESERVES																										
Industrial Operations	1				1																					
Campers	31	6	3	1	41	3,393		3,393	965½	115	579½	1,733				1,513	4,732	$3,467.00	$3,467.00	$ 723.75		$4,190.75	$ 208.01	$ 306.75	$ 514.76	
Smokers	5	3	1		9	46		46			8	38					60	45.00	45.00	8.00		53.00	56.04	32.75	88.79	
Settlers	3		4	1	8	700	290	990	100	35		855	160	375			225	110.00	110.00			110.00	68.99	613.21	682.20	
Railways	5	4		1	10	542½		542½	20	33		489½					250	187.50	187.50			187.50	61.23	114.68	175.91	
Lightning	1				1																		13.16		13.16	
Incendiary	1	16	4	1	22	1,347¼		1,347¼	154	15	666	512¼		820	$210.00		164	43.00	253.00	436.25	$ 535.00	1,224.25	72.73	61.65	134.38	
Public Works		1			1	½		½			½									2.50		2.50	31.00	4.25	35.25	
Unclassified	1	1			2	½		½		½													9.01		9.01	
Unknown	2				2																					
TOTALS	50	31	12	4	97	6,029¾	290	6,319¾	1,239½	198½	1,254	3,627¾	160	1,195	$210.00	1,513	5,431	$3,852.50	$4,062.50	$1,170.50	$ 535.00	$5,768.00	$ 520.17	$1,133.29	$1,653.46	
SUMMARY BY DIVISIONS																										
Cypress Hills																										
Crowsnest	7	1			8	6		6			5	1					60	$ 45.00	$ 45.00			$ 45.00	$ 70.55	$ 30.75	$ 101.30	
Bow River	1	1			2	½		½		½													3.46		3.46	1
Clearwater	1			1	2	685	170	855	85			770	160				225	110.00	110.00	$ .50		110.50	50.00	598.57	648.57	467
Brazeau	2				2																		5.55		5.55	9
Athabasca	1	1			2	½		½			½									2.50		2.50	31.00	4.25	35.25	7
N.A.F.D.*	38	28	12	3	81	5,337¾	120	5,457¾	1,154½	198	1,248½	2,856¾		1,195	$210.00	1,513	5,146	3,697.50	3,907.50	1,167.50	$ 535.00	5,610.00	359.61	499.72	859.33	939
TOTALS	50	31	12	4	97	6,029¾	290	6,319¾	1,239½	198½	1,254	3,627¾	160	1,195	$210.00	1,513	5,431	$3,852.50	$4,062.50	$1,170.50	$ 535.00	$5,768.00	$ 520.17	$1,133.29	$1,653.46	1,423

†M.ft.B.M.—Thousand feet, board measure.
*N.A.F.D.—Northern Alberta Forest District.

Personnel.—It has already been remarked that field staff strength which provides coverage for protection and administrative purposes remains the same as for many years past. The situation is not satisfactory either as to the period of employment of the seasonal staff or as to the number of staff employed on a permanent basis. A review of the improvements constructed within the forest reserves in particular, and elsewhere in the Province where the Forest Service has been responsible for the construction of improvements, reveals that trails, roads and telephone lines are becoming gradually more and more difficult to maintain. Ordinary maintenance can be dealt with by the regular staff provided a permanent staff of sufficient size is employed to give minimum maintenance during the winter months and provided also that the seasonal staff is employed sufficiently long enough to permit the various improvements to be properly reconditioned during the summer. In connection with roads, trails and telephone lines, however, there is the matter of replacement of larger bridges, long sections of corduroy and the replacement of pole line sections of telephone lines. Organized crews are necessary for the purpose of attending to such work.

It is desired also to again emphasize the fact that settlement on lands adjacent to timber regions has greatly increased in the last few years and that this settlement is always followed by fire danger. It is essential for the purpose of forest protection that the field staff be enlarged sufficiently to meet present requirements.

Fire-fighting Equipment.—Previous reports have pointed out the need for supplying fire-fighting equipment in greater quantities. A season of destructive fires will make this only too apparent, and it would be regrettable if the present inadequate staff was handicapped due to the lack of sufficient equipment.

Co-operation—Generally speaking the public has given support in matters of fire prevention and forest protection and in many localities it is believed that some headway has been made in having the citizens of the Province realize the importance of forest cover. The solution of the main protection problem is to be found in this direction.

The necessity for a satisfactory co-operative arrangement with the Province of British Columbia is only too apparent. During the past fifteen years it has been evident that territory in Alberta adjacent to the British Columbia boundary is greatly endangered through fires originating in that Province, and in recent years with the reduction of the protective staff in British Columbia and the withdrawal of a large number of staff from the interior of that Province, the danger has been considerably greater. It is present, in particular, from Kananaskis Lakes to Waterton Park in the south, and in northern Alberta from the point where the main range of the Rocky Mountains ceases to be the interprovincial boundary north to the Northwest Territories. Any effort that is made on the part of Alberta to protect forests in the two sections referred to may easily be nullified by the lack of suitable provision made by the neighboring Province.

This is a matter of grave concern and should be dealt with definitely through both provinces undertaking to arrange for forest protection in territory adjacent to the interprovincial boundary on a basis which will provide some assurance that the efforts of one province will not be nullified by a lack of effort of the other.

Forest Administration

Provincial Forest Reserves.—A decrease in the amount of timber taken under timber sales and timber permits will be noted, excepting that there has been an

increase in the amount of mining timber required for the operation of coal-mines located within forest reserves. The decrease in the number of permits is particularly noticeable in the Cypress Hills Forest Reserve, where, no doubt, hauling conditions had the effect of reducing the number of such operations. The salvage of timber in this Reserve which was fire-killed by the Willow Creek fire continued and good results in a clean-up of the fire area are being obtained.

The consolidated statement of timber operations on provincial lands, which now includes those within forest reserves, will indicate the extent of these activities.

TIMBER CUT UNDER PERMIT, ALBERTA FOREST RESERVES
FISCAL YEAR 1935-36

	Cooking Lake	Cypress Hills	Crowsnest-Bow River	Clearwater	Brazeau-Athabaska	Totals
Number of permits	12	191	389	21	26	639
Fuelwood, dry, cords	11	488½	4,827	37	143	5,506½
Fuelwood, green, cords	....	1	128	.....	.....	129
Mine timber, dry (lineal feet)	....	.....	503,500	130,000	.....	633,500
Mine timber, green (lineal feet)	....	724	5,000	4,000	.....	9,724
Lagging, cords	....	.....	10	.....	.....	10
Lagging(lineal feet)	....	.....	15,000	6,000	.....	21,000
Fence posts	2,600	991	8,013	.....	84	11,688
Sawlogs (F.B.M.)*	7,000	.....	1,514,636	.....	8,000	1,529,636
Round timber (pieces)	530	22,328	22,757	.....	682	46,297
Round timber (lineal feet)	300	319	29,425	.....	37,918	67,962
Fence droppers (pieces)	....	.....	1,800	.....	.....	1,800
Fence droppers, cords	....	6	.....	.....	.....	6
Telephone poles (pieces)	....	.....	315	.....	.....	315
Telephone poles (lineal feet)	....	.....	668	.....	.....	668
Christmas trees	....	4	.....	.....	.....	4

*F.B.M.—Feet, board measure.

STATEMENT OF TIMBER OPERATIONS ON PROVINCIAL LANDS

	Licensed Timber Berths	Permit Timber Berths	Forest Reserve Timber Sales	Provincial Lands Timber Permits	Forest Reserve Timber Permits	Totals
No. of active operations	38	196	20	2,697	639	3,590
Lumber (feet, board measure)	39,711,042	24,793,424	2,923,934	15,597,364	1,529,636	84,555,400
Railway ties	172,248	916,079	46,041	252,928	.....	1,387,296
Piling (lineal feet)	.....	.....	.....	70,656	.....	70,656
Mining timber (lineal feet)	7,126	131,210	3,042,303	570,764	664,224	4,415,627
Lath	5,405,264	1,796,532	.....	8,000	.....	7,209,796
Telegraph and telephone poles	.....	.....	.....	108,705	350	109,505
Building logs (lineal feet)	.....	.....	.....	340,807	993,902	1,334,709
Fence rails	.....	.....	.....	605,357	.....	605,357
Roof poles	.....	.....	.....	127,186	.....	127,186
Fence posts	.....	.....	.....	172,985	11,688	184,673
Shingles	98,410	937,500	.....	188,450	.....	1,224,360
Shingle bolts (cords)	.....	.....	.....	113	.....	113
Cordwood (cords)	592	1,304	.....	66,592	5,651½	74,139½
Number of inspection reports submitted by timber inspectors	.....	.....	.....	2,796	.....	.....
Number of timber seizures made	.....	.....	.....	158	.....	.....

Provincial Lands.—Effective at the beginning of the fiscal year certain changes in administration of forest resources were entailed as a result of a reorganization of the Department. The most important of these changes was the fact that the administration of timber on school lands in the Province was taken over by the Superintendent of School Lands and that the work of the Edmonton Agency in connection with the administration of timber was taken over by the head office of the Forest Service.

Generally speaking, the lumber industry during the year well maintained the slight upward tendency shown in the previous year, both as regards production and market conditions. The demand for railroad ties and other timber products was also well maintained. On the other hand, the continued lack of activity in building construction in the prairie provinces still exerted a depressing influence on the industry generally.

The reductions of dues, granted by order in council during the previous year, and which applied to sawn lumber manufactured from timber cut between October 1st, 1934 and September 30th, 1935 from timber berths in the Province, were extended by a further order in council to cover a similar material cut after that period until June 30th, 1936. It would appear that the granting and further extending of these reductions, while considerably reducing the revenue of the Department, have had a most encouraging effect which has been reflected in increased production and accompanied by the employment of workers who would otherwise be on relief.

There was a slight increase in the number of special permits to cut timber from isolated tracts not exceeding 160 acres in area and containing not more than 125,000 feet, board measure, 261 such permits being issued by the Edmonton and Calgary offices as compared with 252 in the previous year. Operations under these permits have been of considerable assistance to many small operators unable to finance a timber berth operation and have at the same time enabled the Department to dispose of detached blocks of timber too small to attract most timber berth operators.

Continued satisfactory results accrued from the agreement between the Bureau of Relief and Public Welfare and this Department under which permits, issued on behalf of individuals who would otherwise be on relief, authorized the cutting of railway ties from vacant provincial lands. The agreement was also extended to cover similar operations in getting out telephone poles and certain other classes of material.

During the depression years many representations have been made on behalf of all classes of timber operators and settlers in support of requests for reductions of dues, relaxation of regulations and extensions of privileges in utilization of the timber resources of the Province.

It is often overlooked that it is the duty of the Department in the interests of the people of the Province as a whole to so protect, conserve and administer these resources, that the maximum benefit therefrom may be secured with due regard to the interests of timber operators, settlers and the general public. Many also fail to realize that the former practice of the Dominion Government of granting timber to homestead settlers free of dues in order to assist them in getting established and in improving their homesteads has been continued by this Department since the transfer of the resources.

During the fiscal year 1935-36 such permits alone authorized the cutting of the following quantities of timber free of all dues: 205,472 lineal feet of building logs, 9,827,755 feet, board measure, of sawn lumber, 374,463 fence posts, 342,812 roof poles, 1,704,154 fence rails and 5,537 cords of fuel-wood. All of

this material was authorized to be cut from vacant provincial lands and is additional to material cut from homestead lands for use thereon, for which no permit is required. Throughout the period under review permits were also granted to cut 55,849 lineal feet of building logs and 1,018,259 feet, board measure, of sawn lumber from vacant provincial lands free of dues for the construction of educational, religious and charitable institutions, agricultural society buildings and rural community halls. Dues which would have been payable on the amount of material so granted, had these permits issued subject to the payment of dues at the regulations' rates, would aggregate well over $80,000 at a conservative estimate.

Inspection and supervision work in 1935-36 made exceptionally heavy demands upon the timber inspectors. There was again a large increase in the number of inspections and investigations requested and made, in spite of the fact that with the exception of the last month or two, timber inspectors were still required to devote certain days in each month to the transaction of business relative to the sub-agencies of provincial lands at one or more points in their respective districts. During the year, with no increase in personnel, no less than 2,796 inspection reports were submitted, an increase of 22½% over 1934-35. Towards the end of the fiscal year arrangements were made whereby the inspection staff was relieved of further sub-agency work in their districts. This change has tended to alleviate a situation in which an excessive burden was seriously threatening the high standard of efficiency of the timber inspection work.

With regard to timber business transacted in the Edmonton District during the year 1935-36 the following figures are submitted:

(a) Products manufactured from timber berths held under yearly licenses and permits:—

	License Berths	Permit Berths
Lumber, feet, board measure	34,326,155	24,181,397
Railway ties	129,098	867,881
Mining timber, lineal feet	7,126	127,270
Shingles	98,410	822,500
Cordwood, cords	392	1,304

(b) 1,402 timber permits issued authorizing the cutting of the following material from provincial lands:—

Lumber, feet, board measure	11,401,028
Railway ties	147,844
Piling, lineal feet	39,186
Mining timber, lineal feet	531,344
Telephone and telegraph poles	108,705
Building logs, lineal feet	149,258
Fence rails	574,366
Roof poles	120,320
Fence posts	149,930
Shingles	182,000
Shingle bolts, cords	30
Lagging, cords	4
Boxwood, cords	25
Fuelwood, cords	4,306½

(c) 106 seizures made of timber cut from provincial lands as follows:—

Logs, lineal feet	190,424
Lumber, feet, board measure	4,449,943
Fence posts	9,855
Fence rails	150
Railway ties	19,317
Cordwood, cords	957
Shingles	402,250
Mine props	580

Grazing

The grazing statement will provide an indication of the degree to which range within the forest reserves was utilized during the year. Practically all of this use takes place during the summer grazing season. It will be noted that there has been a slight increase in the number of permits issued, a decrease in the number of horses and a considerable increase in the number of cattle

and sheep grazed under permit. Again it can be recorded that almost complete utilization of forest reserve range existed within the Rocky Mountains Forest Reserve from the Elbow River south and over the entire Cypress Hills Forest Reserve.

Another season of drought conditions is recorded for south-western Alberta and at the end of the summer grazing season it was apparent that on certain grazing divisions a reduction in the carrying capacity would have to be made in order to protect the range. Conditions within the Rocky Mountains Forest Reserve and the Cypress Hills Forest Reserve were not nearly so bad in this respect as in the adjoining range territory. This is probably explained by the form of grazing control in effect and also due to possibly greater precipitation in the forested areas.

The results obtained from grazing cattle on forest reserve range under annual permit by the individual stockmen appear to be satisfactory in practically all cases. The form of privilege granted, the control that is possible through the regulations in effect and the procedure followed provide for a very satisfactory situation in so far as forest administration is concerned.

Stock was removed from the range at the end of the summer grazing season in fair to good condition. The condition depends to a large extent on the method of handling the stock during the grazing period and whether or not the stock is new to the range. It has been found that stock new to forest reserve range, such as utilized in Alberta, will not do very well during the first and sometimes the second season. It is probable that the combined effects of altitude and a change of forage provide an explanation.

GRAZING STATEMENT—ALBERTA FOREST SERVICE, 1935-36

Forest	No. of Permits	No. of Horses	No. of Cattle	No. of Sheep
Cypress Hills	70	254	2,762	.....
Crowsnest	198	884	13,949	3,814
Bow River	70	395	7,517	300
Clearwater	85	160	810	.....
Brazeau	101	266	59	.....
Athabaska	9	248	.....	.....
TOTALS	533	2,207	25,097	4,114

COMPARATIVE STATEMENT, GRAZING—ALBERTA FOREST SERVICE

Grazing year—	1931	1932	1933	1934	1935	Totals	Average
Number of permits	456	606	493	517	533	2,605	521
Number of cattle	15,041	20,086	20,230	22,557	25,097	103,011	20,602
Number of horses	3,417	3,377	3,185	2,541	2,207	14,727	2,945
Number of sheep	4,379	7,465	6,705	3,078	4,114	25,741	5,148

Improvements

The improvements referred to are those which have been constructed with a view to providing greater accessibility of forested regions, communication, housing for field staff, equipment, work and pack horses. The only part of the timbered area of the Province which has been developed to a satisfactory degree in this connection is that within the Rocky Mountains Forest Reserve and the area which formerly made up the Lesser Slave Forest Reserve. In these areas roads, trails, telephone lines, houses, cabins, barns and fences have been constructed, and on suitable locations hay meadows have been developed and pastures set aside and fenced so as to have summer and winter feed available for government and rangers' horses.

The actual manual work on practically all improvements is dealt with by the regular field staff of rangers and assistants though on the Clearwater Forest and the Brazeau-Athabaska Forest it was possible to employ additional assistance

for a short time in order to attempt to bring certain trails up to a reasonable standard. Such provision must be enlarged upon in order to permit this work which is of a routine nature to be properly completed each season. In this connection it is desired to point out that on a considerable number of trails and on almost every road there are structures, such as long corduroys and medium sized bridges, which periodically require reconditioning and on which it is not economical to employ the ranger or his assistant. It is also necessary to state that very little can be accomplished in this respect unless a crew of reasonable size is employed on such work. In addition, there arises at fairly definite periods the necessity for reconditioning pole line sections of telephone lines. Any resetting or the replacement of considerable sections of pole lines calls for the employment of a small crew.

In spite of the handicaps of a shortened period of employment for the seasonal staff and of the large reduction in the number of permanent staff, it has been possible so far to keep the improvements in fair condition. Under present circumstances it is no longer possible to make preparation for the summer's work during the winter, such as getting out bridge, culvert and corduroy timbers and preparing them for use, nor is it possible to keep telephone lines in reasonably good condition.

The seasonal staff has not been employed in the spring sufficiently far in advance of the fire season to permit of a complete overhaul of roads, trails and telephone lines, yet it will be at once apparent that all lines of communication should be in a satisfactory condition at as early a date in the spring as working conditions will permit. It is not possible otherwise to send word of fires from the look-outs nor is it possible for fire crews to be transported quickly as the telephone lines would not be working and the roads and trails may be blocked by the fall, winter and spring accumulation of windfall.

In divisions of the Northern Alberta Forest District the size of the staff employed does not permit any great amount of work to be done on improvements other than attempting to keep existing trails open. In the matter of accessibility, there is much to be done in a number of prominent ranging districts. In some of the important divisions of this large district, where at the present time utilization of timber is greater than in any other part of the Province, it is essential that funds be provided to permit the establishment of a radio communication. There are already established four look-out towers which give coverage over practically all of the timbered portion of the Edmonton Division, practically all of the Edson Division and the western portion of the Athabaska Division. In order to get the greatest use from these towers, it is necessary first to install a system of communication from tower to tower and from tower to ranger and secondly to provide for the employment of a look-out man at each tower during the danger periods of the fire season.

Timber operations in the Edson Division and adjacent territory in other divisions account for practically one-half of the saw timber of the Province and approximately 80% of the railway tie supply. This area, if put under proper forest protection and management, will provide a source of supply of such materials on the present scale for many years.

IMPROVEMENT STATEMENT

NEW CONSTRUCTION PROJECTS:

Forest	Houses	Garages, Sheds, etc.	Fences	Fields (breaking in acres)	Water Supply Systems	Barns and Stables	Telephones (miles)	Corrals	Bridges	Look-out Towers	Trails (Miles)	Cabins	Fireguard Roads (Miles)	Tourist Stoves
Cypress Hills	....	2	....	....	....	....	½	....	....	....	....	1	8½	3
Crowsnest	....	....	....	....	1	1	8½	1	1	1	....	....	....	....
Bow River	1	....	....	....	....	....	....	2	....	....	9	....	....	....
Clearwater	1	....	....	....	....	1	....	....	....	....	....	1	....	....
Brazeau	....	....	2	....	1	....	....	....	....	....	....	....	....	....
Athabaska	....	2	4	30	....	....	....	....	....	....	....	....	....	....
TOTALS	2	4	6	30	2	2	9	3	1	1	9	2	8½	3

MAINTENANCE PROJECTS:

Forest	Houses	Cabins	Barns and Stables	Telephones (Miles)	Trails (Miles)	Roads (Miles)	Fences	Corrals	Water Supply Systems	Garages, Sheds, etc.	Look-out Towers and Cabins	Grounds	Hay Meadows & Pastures	Ferries
Cypress Hills	1	9	....	13	....	....	2	....	1	2	....	1	....	....
Crowsnest	9	4	6	154	217½	90	15	3	2	11	....	7	....	....
Bow River	7	9	8	245½	836	91½	24	4	3	8	4	14	5	....
Clearwater	2	9	1	175	864	2	6	....	1	5	....	....	....	1
Brazeau	6	13	3	138	294	....	8	2	1	2	2	6	....	....
Athabaska	2	12	2	65	475	40	8	1	2	....	....	1	....	....
TOTALS	27	56	20	790½	2686½	223½	63	10	10	28	6	29	5	1

IMPROVEMENTS—STATEMENT OF MAN-DAYS WORKED

NEW CONSTRUCTION PROJECTS:

Forest	Garages, Sheds, etc.	Fences	Fields (breaking)	Water Supplies	Telephones	Corrals	Barns and Stables	Bridges	Look-out Towers	Houses	Trails	Cabins	Fireguard Roads	Tourist Stoves	Miscellaneous
Cypress Hills	52	....	....	....	1	....	....	....	....	....	....	58	6½	2½	13½
Crowsnest	....	....	....	4½	62	3½	10½	3	16½	....	....	....	....	....	....
Bow River	....	....	....	....	....	2	....	....	....	2½	7	....	....	....	....
Clearwater	....	....	....	....	....	....	42	....	....	5	....	5	....	....	....
Brazeau	....	22	....	24	....	....	....	....	....	....	....	....	....	....	....
Athabaska	50½	60½	67	....	....	....	....	....	....	....	....	....	....	....	....
TOTALS	102½	82½	67	28½	63	5½	52½	3	16½	7½	7	63	6½	2½	13½

MAINTENANCE PROJECTS:

Forest	Houses	Cabins	Barns and Stables	Telephones	Trails	Roads	Fences	Grounds	Corrals	Water Supplies	Garages, Sheds, Etc.	Look-out Towers and Cabins	Hay Meadows & Pastures	Ferries	Miscellaneous
Cypress Hills	3	....	....	19½	....	....	7	6	....	4	2	....	....	....	....
Crowsnest	159	26	7½	241	95	96½	63	20	2	3½	16½	....	....	....	10½
Bow River	44	21	34	....	429	152	216½	68½	14	18	12½	41	11	....	7½
Clearwater	27	56	2	75	472	2	111	....	....	16	10	....	....	9	....
Brazeau	21½	37	6	165½	357½	....	60	68	3	1½	1½	11	....	....	....
Athabaska	44½	28½	8	54½	342	146	48½	6½	½	23	....	....	....	....	4
TOTALS	299	168½	57½	555½	1695½	396½	506	169	19½	66	42½	52	11	9	22

Nursery and Tree Distribution

Nursery.—Nursery operations at the Oliver Institute were continued on much the same lines as the preceding year but neither in the fall of 1935 nor the spring of 1936 was any nursery work attempted at the other establishments excepting at Lethbridge jail. Oliver is the point from which tree distribution is made and from which the subsidiary nurseries at Fort Saskatchewan, Ponoka and Lethbridge obtain their seedling supply.

Following is a statement of the seeding done at the Oliver nursery in the fall of 1935 and the spring of 1936:

7 lineal feet European larch (*Larix europaea*).
6 " " Scotch pine (*Pinus sylvestris*).
165 " " Lodgepole pine (*Pinus murrayana*) 60%, 5 lbs.
48 " " Siberian larch (*Larix sibirica*) 24 oz.
35 " " White spruce (*Picea glauca*) 48%, 1 lb.
5 " " White spruce (*Picea glauca*) 36%, 2 oz.
51 " " White spruce (*Picea glauca*) 40%, 26 oz.
60 " " Red pine (*Pinus resinose*) 30 oz.
9 " " Silver maple (*Acer saccharinum*).
17 " " Basswood (*Tilia americana*) 20 oz.
7 " " Lyall's larch (*Larix lyallii*) 4 oz.
White elm (*Ulmus americana*) 42 oz.
Green ash (*Fraxinus pennsylvanica*).

The last two named were planted in rows and the others in seed-beds. The unit of measurement is the lineal foot, which comprises a length of one foot in the seed-beds, which are four feet wide. One lineal foot is, therefore, equal to four square feet. A similar unit will be used to describe other stock in the seed-beds. Where possible, the germination percentages and weight of seed planted were noted and are given above. Circumstances sometimes made it impossible to obtain this data and the seeding statement is for that reason incomplete.

In the fall of 1935 and the spring of 1936 the following stock was removed from the seed-beds to the transplant beds:

7,535 White spruce (*Picea glauca*).
1,650 Scotch pine (*Pinus sylvestris*).
13,800 Nordman fir (*Abies nordmanniana*).

It is estimated that the following stock at Oliver will be ready for transplanting in the fall of 1936:

129,000 White spruce (*Picea glauca*).
2,000 Siberian larch (*Larix sibirica*).
3,500 Douglas fir (*Pseudotsuga mucronata*).
10,000 Scotch pine (*Pinus sylvestris*).
4,500 Ladoga pine.
2,000 White elm (*Ulmus americana*).
6,000 White ash (*Fraxinus americana*).

In addition, there are 8,500 Green Ash which were seeded out in a row and which should, if possible, be transplanted.

Rabbits have been destructive to the trees set out along the highway between North Edmonton and Oliver and the casualties were replaced. The high mortality in the trees planted along this highway has resulted in the trees being of uneven ages, as replacements were made from year to year and the work done on this project does not by any means show all the results that could be desired.

The Forest Service sent two employees to assist with the tree planting programme at the Oliver School, which is situated on the Calgary highway. The soil around the outside part of the school grounds had been cultivated, but the cultivated areas were of varied width and it was not possible to make as complete and uniform a plantation as was desired. The trustees intend to cultivate a wider area in order that further planting may be done next year. The following were planted:

1,000 Laurel leaf willow (*Salix pentandra*).
67 White spruce (*Picea glauca*).
42 Russian Poplar (*Populus balsamifera*).
25 Green ash (*Fraxinus pennsylvanica*).

Up to the present success is attending the propagation of the following exotics, except where modifications are noted. In most instances, the stock reported on is quite young and the statements made at present are not by any means conclusive:

White pine (*Pinus strobus*).
Austrian pine (*Pinus austriaca*).
Scotch pine (*Pinus sylvestris*).
English oak:—grows well each year, but winter-kills.
English walnut (*Juglans regia*); alive but winter-kills.
English hawthorn; winter-kills.
Juniper (*Juniperus*).
Western Red Cedar (*Thuja plicata*).
Redwood (*Sequoia sempervirens*).
Satalpa; killed back a little.
Silver maple (*Acer saccharinum*).
Black walnut (*Juglans nigra*); growing, but killed back a little.
White ash (*Fraxinus americana*).
Butternut (*Juglans cinerea*); tip-killed.
Colorado blue spruce (*Picea pungens*).
Koster blue spruce (*Picea pungens glauca*).
White oak (*Quercus alba*).
Sugar maple (*Acer saccharum*).
Peach-leaved willow (*Salix amygdaloides*).
Red oak (*Quercus rubra*).
Filberts (*Hamamelis*).
Bur oak (*Quercus macrocarpa*).
Beech (*Fagus grandifolia*); winter-killing.
Colorado green spruce (*Picea pungens viridis*).
Basswood (*Tilia americana*).
Siberian larch (*Larix sibirica*).
Horse chestnut (*Aesculus hippocastanum*).

Tree Distribution.—Following is a statement of the transplants, cuttings and seedlings distributed to applicants from Oliver in the spring of 1936:

Transplants:		
White spruce (*Picea glauca*)	28,857	
Lodgepole pine (*Pinus murrayana*)	20,688	
Scotch pine (*Pinus sylvestris*)	6,467	
Jack pine (*Pinus banksiana*)	3,515	
Green ash (*Fraxinus pennsylvanica*)	15,129	
White elm (*Ulmus americana*)	4,026	
Red pine (*Pinus resinosa*)	200	
Bur oak (*Quercus macrocarpa*)	149	
Western yellow pine (*Pinus ponderosa*)	200	
		79,231
Cuttings:		
Russian poplar (*Populus balsamifera*)	8,295	
Golden willow (*Salix vitellina*)	5,400	
Laurel leaf willow (*Salix pentandra*)	3,800	
		17,495
Seedlings:		
Siberian larch (*Larix sibirica*)	12	
White elm (*Ulmus americana*)	7,500	
Red oak (*Quercus rubra*)	1,105	
Bur oak (*Quercus macrocarpa*)	50	
		8,667
TOTAL		105,393

An area of the transplant beds was flooded which prevented the removal of all the green ash and white elm required. As a consequence it was not possible to send these species to all the applicants to whom they had been promised. Drainage for the low land was provided by the use of a crew of unemployed from Edmonton and recurrence of the flooding in future years is not anticipated.

Some ornamental trees were available for provincial institutions and of the following which were sent out the greater portion was used on the grounds of the Mental Hospital at Ponoka:

347 Colorado blue spruce (*Picea pungens*).
239 Mountain ash (*Pyrus americana*).
398 Lilac (*Syringa japonica*).
230 Buckthorn (*Rhamnus*).
63 Honeysuckle (*Lonicera ciliosa*).
255 Cotoneaster (*Acutifolia*).
6 Ginnalian maple (*Acer ginnala*).
15 Dogwood (*Cornus pubescens*).
3 Native hawthorn (*Cretaegus*).
6 Ash-leaved spirea (*Sorbaria sorbifolia*).
31 Plum (*Prunus nigra*).
50 Wild wolf willow (*Elaeagnus argentea*).

A total of 259 applications was approved, of which 223 were for individuals, 23 for schools and 13 for institutions. In only one instance was it reported that the applicant did not call at the express office for his trees and as in previous years the railway company was instructed to give the trees to anyone who would pay the express charges.

It is estimated that the following will be in condition for distribution in 1937:

1,000 Siberian larch (*Larix sibirica*) (2-0).
1,775 Mountain ash (*Pyrus americana*).
4,000 White spruce (*Picea glauca*) (2-3).
3,600 Scotch pine (*Pinus sylvestris*) (2-1).
59,320 Lodgepole pine (*Pinus murrayana*) (2-2 and 1-3).
9,720 Green ash (*Fraxinus pennsylvanica*).
200 Red oak (*Quercus rubra*) (2-1).
3,000 White elm (*Ulmus americana*) (1-2).

The following will be ready for distribution in 1937, but may be held over without harm if there is no demand for them:

12,000 Lodgepole pine (*Pinus murrayana*) (2-2).
2,000 Scotch pine (*Pinus sylvestris*) (2-1).
250 Birch (*Betula alba*).
400 White spruce (*Picea glauca*).

Note: The figures in brackets show the ages of the species named. The first figure represents the number of years the stock has been in the seed-beds, the second the number of years in the transplant beds.

Bur oak, red oak and green ash have been seeded out in rows and are now showing very good growth. The present numbers of these are:

15,000 Bur oak (*Quercus macrocarpa*).
5,000 Red oak (*Quercus rubra*).
8,500 Green ash (*Fraxinus pennsylvanica*).

It is planned to send out some of the oak for trial in 1937.

It will be necessary to take into consideration for next year the fact that much of the stock at the nurseries at Ponoka, Fort Saskatchewan and Lethbridge will be ready to be given out. Past experience has shown that when the stock is carried over too long it gains too much in growth and is very heavy and awkward to handle. The work of shipping is slowed up very considerably and although the recipient is given larger transplants, he has to pay heavy express charges and the Forest Service has to pay more for trucking, for parcelling supplies and for labour than if smaller transplants were handled.

It is important that the advertising of stock should be attended to in the near future in order that the applicants may have ample time to place their requests for consideration.

Complaints have been received that some of the trees were sent out so late in the spring that they were budded out and many died in transplanting. As was the case in the previous year, assembling and parcelling the trees for shipment took a great deal of time and the applicants dealt with near the last were given trees that were not in the best of condition for transplanting. The remedy for this is to make better speed on the shipping and to do this it is vital that more space be provided and more tables for parcelling be put into use.

The quarters used for this work at present are much too confined and are not very well lighted. Lack of speed at the critical time results in high mortality in the transplants and, to a certain extent, a waste of the other efforts in nursery work. Besides this, when so much time is taken up in shipping work, it is not possible to accomplish much transplanting within the nursery in the early spring.

Publicity

The situation with respect to publicity given to forest protection and fire prevention is the same as previously reported.

It is not in the best interests of protection of the timber resource and as soon as possible means should be found to greatly enlarge the effort made in this connection. It has been noted that in general the public is favourably disposed towards accepting the principle that greater care on the part of everyone is an absolute necessity in the interests of conservation of the forest resources of this Province. With the public in this mood it is believed that the proper time has arrived to enter upon a suitable programme of publicity which would be mainly in the form of informative articles of educational value.

It is regrettable to note that the principal publicity appearing through the press is that which arises as a result of the presence of destructive fires. The same amount of publicity directed towards prevention, appearing at the proper season, would have a very beneficial effect.

This publicity should cover the inter-related resources of forests, game, fur producers and fish.

Public Relations.—Public relations of the Forest Service both in the field and in the office with respect to forest administration matters and forest protection appear to be on a very satisfactory footing. The effort on the part of all Forestry officials is one of co-operation with the public and every endeavour is made to assist with a general view of establishing a better understanding on the part of all concerned.

MILEAGE TRAVELLED BY EMPLOYEES OF THE ALBERTA FOREST SERVICE

FISCAL YEAR 1935-36

Divisions	Foot	Saddle	Driving	Speeder	Auto	Canoe	Rowboat	Motorboat	Railway	Raft	Dogteam	Total
Northern Alberta Forest District (Fire Rangers)	15,704	36,552	5,637	11,989	10,917	6,353	149	4,340	2,141	262	.....	94,044
Northern Alberta Forest District (Timber Inspectors)	3,813	1,051	5,189	4,079	64,105	343	59	1,009	16,819	.....	45	96,512
Crowsnest-Bow River Forest	2,028	36,897	2,882	.....	32,523	.....	.....	.....	160	.....	.....	74,490
Clearwater Forest	2,360	13,428	1,805	1,396	8,513	.....	47	.....	564	.....	.....	28,113
Brazeau-Athabaska Forest	2,198	13,675	.....	4,735	1,236	.....	.....	.....	519	.....	.....	22,363
TOTALS	26,103	101,603	15,513	22,199	117,294	6,696	255	5,349	20,203	262	45	315,522

Fisheries

REPORT OF THE DIRECTOR OF FISHERIES, R. T. RODD

A review of the fiscal year ending March 31st, 1936 will demonstrate the fact that exportation of marketable fish produced in the Province still continues on the upgrade. While prices were not all that might be desired for the summer-caught product, little difficulty was experienced in marketing Alberta fish during this period. A drop in production in the other western provinces had a steadying effect on prices to producers and dealers, especially toward the end of the winter season.

It cannot be gainsaid that with careful attention to handling and packing the export market can readily absorb the available quantity of fish produced from the various Alberta lakes. On the other hand it is recognized that with present unemployment, illegal practices are more prevalent than heretofore. Many farmers, incidentally, have taken up fishing in the hope of earning money to assist in farming operations and to make living expenses, increasing thereby the difficulties of regular fishermen who for years have made fishing a vocation. In view of the fact that the poundage of commercial fish is limited on all such classes of lakes, a large number of itinerant fishermen operating tends to reduce the per capita catch to the genuine fisherman.

Angling in the period under review was reported as excellent in some districts to fair in streams overfished and easily accessible. Losses were reported through the freezing of some streams in low water conditions during the winter.

Further particulars are itemized under separate headings and are as follows:

Commercial Fishing

The period under review exhibits a total catch of 4,921,542 pounds, an increase of 862,106 pounds over the previous year. The value of the year's catch to fishermen was $200,394.00, an increase of $55,204.46 and the value as marketed was $287,726.00, an increase of $43,655.23.

Production of whitefish, lake trout, pike, tullibee, sucker, ling, goldeye and mullet shows an increase, but pickerel and perch a decrease.

A large quantity of new netting was purchased during the year, the greater part of which was obtained by fishermen operating for the first time. Many of those who fished during the previous year continued to operate with old nets and other necessary gear. Pedlars were active and some new trucks were purchased for hauling fish to local markets, which throughout Alberta were well stocked during the open season with reasonable prices prevailing.

Lesser Slave Lake.—The summer season was not a very satisfactory one. Markets were poor, due to heavy production in other provinces, and flood conditions were so bad that many fishermen were forced to give up fishing. With a higher water level whitefish spread throughout the lake and were difficult to find on the usual grounds. A total reduction of fish to the amount of 444,468 pounds for summer fishing is recorded, and reflected in the lower earning to the fishermen by $11,000.00 and $28,000.00 in the marketed value.

The December fishing period records a slight reduction of approximately 7,000 pounds and a correspondingly smaller value to fishermen and as marketed.

The January-March, 1936 period also shows a decrease of 92,260 pounds and a reduction in value to fishermen of approximately $1,000 and $4,000 as marketed. Many small whitefish in increasingly large numbers were reported by fishermen and operators evidencing gradual recovery due possibly to stocking from the hatchery. As a result of abnormal conditions, a fair comparison with the year previous is almost impossible but the many reports received are crowning proof of better fishing prospects on the lake.

Lac la Biche.—Summer operations, it will be noticed, report an increase of 316,591 pounds due chiefly to a great catch of the coarser varieties, namely pickerel, pike and tullibee, with only slightly higher value to the fishermen as marketed. The removal of the coarser varieties will improve the lake for the more valuable whitefish, which exhibit a slight decrease. The number of fishermen operating shows an increase of three over last year's total.

An increase is also reported for the December catch of 49,325 pounds. All varieties were included in this increase. Prices were fair and some difficulty was evidenced in marketing the large number of tullibee. This variety is not popular on local markets unless it is filleted and is practically unexportable.

January-March period shows a large increase over the similar period of the previous year, namely 123,583 pounds of all varieties, but chiefly pike and tullibee. Prices for these varieties were only fair, hence value to fishermen resulted in a small gain of approximately $2,000.00 and as marketed, approximately $1,900.00. Fishermen in this district also carried on operations over different periods at Beaver, Blackett, Elinor, Frenchman, Ironwood, Jackson and Kinnaird lakes. In addition to these Heart Lake in the Lac la Biche district was reopened and reported a gain, which was largely pickerel, of 45,738 pounds. Good prices were obtained for the lake products, resulting in a gain to the fishermen of the district of $3,132.00 as well as there being an increase in the value as marketed. Mosquito Lake produced 15,815 pounds of Jumbo whitefish. The catch was made by three fishermen and sold for $1,494.00, export being arranged through Lac la Biche operators.

Cold Lake.—Commercial fishing in this lake is permissible during the winter only, the summer season being reserved for angling and domestic fishing.

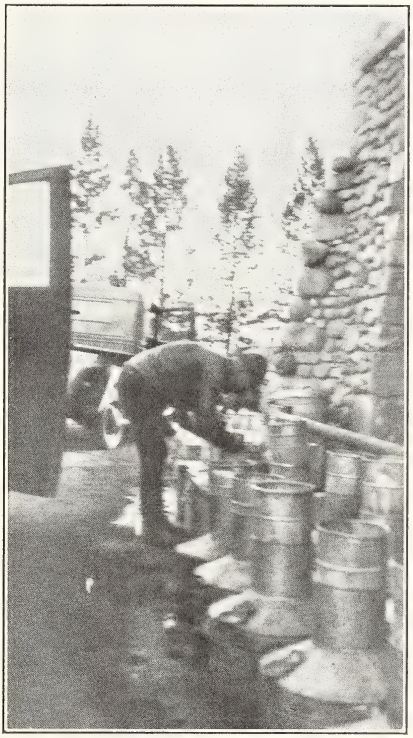
A large increase of 77,102 pounds of trout and whitefish is recorded for December with corresponding increases in values to fishermen and as marketed. Fifty-six more fishermen were granted licenses during this year. Fishing was good and prices steady, a large portion of the trout being disposed of throughout Alberta. The period of January to March, 1936 showed little change in the amount of fishing, a small decrease of approximately 6,172 pounds being reported. In conjunction with Cold Lake, Primrose Lake was fished during the winter, and reported a decrease of approximately 9,481 pounds.

Big Whitefish Lake and Little Whitefish Lake, No. 2.—These now important lakes continue to provide excellent catches, contributing a reasonable return to the Lesser Slave Lake fishermen, who operate during December. A total of 62,445 pounds, mostly whitefish, was produced over last year's quantity and good prices were obtained by fishermen and operators. In addition to being of importance from a commercial standpoint, these lakes are valuable fishing spots to the population whose residences are found to be in close proximity and especially important as a spawn collecting station for the whitefish hatchery at Canyon Creek.

Pigeon Lake.—Due to the desire on the part of fishermen to obtain better prices, the open season on this lake was again delayed until January. The same

condition as last year applied as to length of net allowed, namely 100 yards per license. The number of licenses applied for totalled 284, a reduction of ninety. Extremely cold weather coupled with the previous season's overfishing reflected adversely on the situation this year in comparison with previous years. A reduction in catch of 47,489 pounds of whitefish was reported but the per capita payment to fishermen on this product was somewhat better. The value of the reduction, however, was computed to be only approximately $2,660.00. Weather conditions did not interfere unduly with the marketing of fresh whitefish and very little of the frozen product was sold. With present regulations in force heavy fishing is impossible and markets are closely watched to prevent a glut. Indian and domestic fishing continued heavily during the summer months and with the large number of fishermen operating, the lake is unable to stand the drain and consequently is a source of worry.

Winnifred Lake.—Fishing did not materialize during December, markets being too uncertain for this far-off lake and fishermen were generally busy on other lakes. The January to March period provided employment for twelve men and the total catch of all species amounted to 105,100 pounds with good prices prevailing. The total catch for this period exceeded that of the year previous by approximately 6,000 pounds.



Icing rainbow fry containers at Jasper

Wabamun Lake.—This lake continues to provide splendid fishing throughout the entire year; 399,290 pounds of fish were produced, an increase of 86,638 pounds, with 501 men fishing. Heavy runs of whitefish throughout all periods were the rule. The fish caught are easily marketed at good prices.

A large increase of approximately 256 more licenses was evidenced, and though there was a reduction of yardage to 100 yards per license the total used amounted to practically the same as in the year previous. Due to good prices, heavy catches per net and proximity to local markets much difficulty has been experienced in preventing illegal practices, and it was necessary on occasion to transfer other Fisheries inspectors to assist the resident inspector in controlling the situation. Considerable latitude was given the representation of fishermen's societies in the district to provide work and wages during unemployed periods and the Fisheries Service gave reasonable requests every consideration possible, whilst urging the necessity for careful observance of conservation and protective measures. The remarkable catches obtained, the average size of the whitefish caught and the innumerable small fry seen give every reason for believing that in spite of heavy production the lake is still in a very healthy condition.

Calling Lake.—Fishing on this lake was pronounced fair only to the 47 fishermen operating during December. A total amount of 130,050 pounds of all species was shipped, as against 123,950 pounds with 32 operating the year previous. For short periods planes were used to bring the product out in a fresh state to Athabaska. A fairly large increase is recorded in the fishing period from January to March, a total amount of 64,000 pounds of all kinds being taken as against 16,500 for the same period the year previous. This lake is the largest producer in the Athabaska district and in providing good fishing during the off winter season for the unemployed is valuable from this standpoint. The district in question is poorly settled.

General.—It is interesting to note that Lake Newell, stocked in 1932 with eyed whitefish spawn from the Whitefish Lakes, and containing no whitefish previous to this, was opened for the fishing of a limited amount of this species during March. A total catch of 7,126 pounds was marketed throughout southern Alberta. This is the first instance of whitefish being marketed from a local lake nearer than Pigeon Lake. It is extremely gratifying that the result of this experimental stocking should be apparent so early.

Many other lakes were fished commercially with minor catches being obtained. Some of these lakes supply small towns in the vicinity in addition to the many fur farms now in operation, the latter representing an increasing market for coarser varieties of fish.

Lakes distant from the railway, after being untouched for several years, were also fished during this period. This was unquestionably due to the much better prices which were available.

Equipment.—New equipment was purchased by fishermen operating for the first time and replacements of worn-out equipment were made by fishermen who had operated in previous years. Planes were used from the far-off lakes during the latter part of the winter but poor flying weather interfered in the movement, one plane being partially wrecked and another totally destroyed in the Lesser Slave Lake district.

Markets.—Markets which prevailed during the summer season and part of December were fair only, the returns in consequence being small to both producers and operators. The latter part of the summer, however, reported an improvement for a short period.

Unusually good market conditions were evidenced from the beginning of February to the end of March and all classes of fish were readily disposed of. Close co-operation of the operators and the Fisheries prevailed during the entire year with regard to market conditions and limitations were extended when warranted with satisfactory results to both fishermen and the trade. On the whole it can be said that market conditions were for the most part satisfactory.

Transportation.—The winter of 1935-36 was notable for its depth of snow and subzero weather, which seriously affected the transport of fish to markets, making the use of planes necessary in many cases to transport products from far-off lakes to steel. Wherever possible nearly all of the commercial lakes were fished. Lakes Namur and Legend offered the operating company some difficulty in marketing the fish in a fresh state, due to the difficult terrain in which they are situated. The difference in price in marketing fresh and frozen fish sometimes creates unprofitable marketing for the latter. Nearly all operating companies are therefore anxious that road conditions and transportation facilities are good before distant lakes are fished. The co-operation which existed between railway and other transportation companies and the operators and fishermen, with a view to quick marketing of the product, was extremely satisfactory and effective.

Domestic Fishing.—A significant feature of domestic fishing has been the difficulty arising from the desire on the part of some who took part in it to add to their commercial catch by this method. Control was difficult and in order to ease the situation domestic fishing was refused during the commercial season especially on Wabamun lake and Lac Ste. Anne. Domestic fishing for family use continues to be popular at Lac Ste. Anne, Lac la Nonne, Chin Lakes and Lakes Floating Stone, Pigeon, Buffalo and Buck—the last named being situated in township 46, range 6, west of the 5th meridian—which provided the chief source of supply. The total amount produced under domestic fishing for the year ending March 31st, 1936 was 616,490 pounds with an estimated valu-

TOTAL AMOUNT OF FISH TAKEN FOR COMMERCIAL PURPOSES

Classification	Period	Weight (lbs.)		Value to Fishermen		Value as Marketed	
WHITEFISH	May 16/35 to Sept. 30/35	738,764		$ 37,907.00		$ 64,488.00	
	Dec. 1/35 to Dec. 31/35	542,806		20,855.00		37,896.00	
	Jan. 1/36 to March 31/36	908,155		81,333.00		100,929.00	
			2,189,725		$140,095.00		$203,313.00
LAKE TROUT	May 16/35 to Sept. 30/35	.....		.....		.....	
	Dec. 1/35 to Dec. 31/35	30,639		$ 1,531.00		$ 2,451.00	
	Jan. 1/36 to March 31/36	73,003		4,011.00		6,531.00	
			103,642		5,542.00		8,982.00
PIKE	May 16/35 to Sept. 30/35	462,247		$ 5,024.00		$ 5,337.00	
	Dec. 1/35 to Dec. 31/35	188,206		2,879.00		3,874.00	
	Jan. 1/36 to March 31/36	397,069		8,242.00		8,612.00	
			1,047,522		16,145.00		17,823.00
PICKEREL	May 16/35 to Sept. 30/35	331,809		$ 9,093.00		$ 17,835.00	
	Dec. 1/35 to Dec. 31/35	85,279		2,512.00		4,181.00	
	Jan. 1/36 to March 31/36	177,052		12,014.00		14,641.00	
			594,140		23,619.00		36,657.00
TULLIBEE	May 16/35 to Sept. 30/35	311,766		$ 4,723.00		$ 8,587.00	
	Dec. 1/35 to Dec. 31/35	88,925		1,174.00		1,960.00	
	Jan. 1/36 to March 31/36	167,634		2,846.00		3,195.00	
			568,325		8,743.00		13,742.00
PERCH	May 16/35 to Sept. 30/35	42,440		$ 1,031.00		$ 1,657.00	
	Dec. 1/35 to Dec. 31/35	3,050		177.00		275.00	
	Jan. 1/36 to March 31/36	56,509		3,459.00		3,674.00	
			101,999		4,667.00		5,606.00
SUCKER, LING, GOLDEYE, MULLET	May 16/35 to Sept. 30/35	187,309		$ 681.00		$ 701.00	
	Dec. 1/35 to Dec. 31/35	28,915		172.00		172.00	
	Jan. 1/36 to March 31/36	99,965		730.00		730.00	
			316,189		1,583.00		1,603.00
	TOTALS		4,921,542	$200,394.00	$200,394.00	$287,726.00	$287,726.00

The following tables show the amount of fish exported from Alberta during the past year to various eastern markets:—

FISH SHIPPED DURING THE SUMMER SEASON OF 1935

Destination	Trout, lbs.	Whitefish, lbs.	Pickerel, lbs.	Pike, lbs.	Perch, lbs.	Tullibee, lbs.	Pickerel Fillets, lbs.	Total lbs.
Chicago	.....	291,180	204,800	.....	14,250	39,750	.....	549,980
New York	.....	280,500	179,000	.....	25,050	24,800	.....	509,350
TOTALS	.....	571,680	383,800	.....	39,300	64,550	.....	1,059,330

FISH SHIPPED DURING THE WINTER SEASON OF 1935-36

Chicago	51,680	553,534	63,238	93,450	7,700	7,200	.....	776,802
New York	12,700	724,725	147,950	189,500	53,780	41,341	.....	1,169,996
TOTALS	64,380	1,278,259	211,188	282,950	61,480	48,541	.....	1,946,798

FISH SHIPPED DURING THE FISCAL YEAR 1935-36

Summer Season	.....	571,680	383,800	.....	39,300	64,550	.....	1,059,330
Winter Season	64,380	1,278,259	211,188	282,950	61,480	48,541	.....	1,946,798
TOTALS	64,380	1,849,939	594,988	282,950	100,780	113,091	.....	3,006,128

NOTE: The total of 64,380 lbs., trout, as shown above, represents the amount exported from Cold Lake during the winter season from both Alberta and Saskatchewan portions of the lake. The total amount of whitefish and pickerel shipped during the winter season includes the fish taken from the Saskatchewan areas of Cold and Primrose lakes.

ation of $33,694.00. A very slight decrease is indicated from that of the previous year. The number of domestic licenses issued was 622 or a decrease of 32.

Indian Fishing.—Fishing permits issued to Indians during this period totalled 801, a decrease of 41. The estimated quantity of fish caught amounted to 834,650 pounds with an estimated value of $42,971.00. This shows a decrease of 271,625 pounds and $15,005.00. Indians, generally speaking, fish very spasmodically, their nets and equipment as a rule being poor, due no doubt to their inability to make new purchases. A number of Indians are now fishing commercially and in the interim do not fish for their own use, hence the reduction aforementioned.

LICENSES AND PERMITS ISSUED

Fiscal Year	*1930-31	1931-32	1932-33	1933-34	1934-35	1935-36	Total
Domestic licenses	566	555	458	508	654	622	3,363
Fishermen's and commercial licenses	1,033	755	598	746	1,296	1,741	6,169
Angling permits sold by Fisheries Division	7,731	6,533	4,963	4,823	5,015	4,562	33,627
Angling permits sold by Forestry Division	.....	566	478	397	475	363	2,279
Indian permits	1,130	736	860	910	842	801	5,279
Boat licenses	.....	.....	.....	.....	33	30	63
TOTALS	10,460	9,145	7,357	7,384	8,315	8,119	50,780

*Six months period.

Loading rainbow fry on to trucks at Jasper

Loading rainbow fry on to trucks at Jasper

Decreases are evident in a small degree in the issue of domestic, angling, Indian, boat and permit licenses, with a large increase, however, shown for fishermen's and commercial licenses.

LICENSES AND PERMITS, FISCAL YEAR 1935-36, IN COMPARISON WITH PREVIOUS YEAR

	Decrease
Domestic licenses	32
Angling permits sold by Fisheries Division	453
Angling permits sold by Forestry Division	112
Indian permits	41
Boat licenses	3
	641
Less increase in fishermen's and commercial licences	445
Net decrease	196

Angling.—Reports indicate continued good fishing for trout in the Bow and Elbow as well as the Highwood rivers. Better than average angling also prevailed throughout the season at Cold Lake. Especially good fishing for Arctic grayling during the later summer months was obtained in the Macleod River and the few fishermen who ventured the Clearwater River near Fort McMurray secured excellent Arctic grayling catches. Reports from these anglers would indicate that this river is an ideal, sporting river, possessing rapids and deep clear pools with fish taking the fly readily.

Large specimens of rainbow were caught in the Bow and one authentic report from the Waterton Lake district revealed a 16 pound catch of this species. Rainbow trout from 3 to 6 pounds were frequently caught especially from the Bow below Carseland. The lake formed by the Glenmore dam is proving to be an ideal sanctuary for game fish.

It is of particular interest to note that Loch Leven trout, an imported species, are to be seen and caught in numbers throughout the Clearwater (Central Alberta) and the Red Deer watersheds. This game fish was introduced as an experiment some few years ago and has adapted itself remarkably well to the area mentioned. Fishermen claim that its sporting qualities are second to none and anticipate excellent fishing in these waters in the very near future.

The usual low water condition in some localities of the smaller mountain streams continues with detrimental effect to angling.

Fishing for coarser varieties such as pike, goldeye and pickerel is as popular as ever and reports indicate that good average catches were obtained throughout the Province. This is particularly true of the district north and west of Edmonton. The resorts around Pigeon, Sylvan, Pine and Wabamun lakes and Lac Ste. Anne report fair average catches throughout the summer and fall seasons.

FISH CAUGHT BY ANGLING, 1935-36

		Increases or decreases in comparison with previous year.
Trout	255,520 lbs.	6,469 lbs. decrease
Rocky Mountain whitefish	67,000 "	33,000 " decrease
Arctic grayling	35,200 "	33,400 " decrease
Goldeye	14,840 "	10,060 " decrease
Pickerel	82,215 "	20,135 " decrease
Perch	204,035 "	84,870 " decrease
Pike	569,853 "	7,794 " increase
TOTAL	1,228,663	

or a decrease in the aggregate of 180,140 lbs. on the year's angling operations. The total value of the catch was $67,662.00.

Loss of Fish and Rescuing Fish.—Loss of fish was reported from several districts during the year due to drought conditions and consequent low water in many of the smaller Foothills streams. Heavy losses of trout took place in Big Stoney Creek, tributary of the Ghost River, and also in several tributaries of the Elbow, Fish Creek and Flat Creek, a tributary of the Highwood River. Losses were also reported in Pincher Creek and other small streams in the Crowsnest Pass. Streams, shallow from drought and freezing to the bottom during the winter months, were the cause.

Tributaries of Willow Creek and the Old Man River were also affected by drought during the summer months but losses in this area were very small due to these streams becoming shallow so gradually during this period that trout were able to move to safer localities as the water became low and warm. Loss of suckers and pike were also reported in the lower reaches of the Little Red Deer River and Dog Pound Creek.

The Fisheries officers reported the rescue of some 2,000 game fish, no effort being made, however, to save suckers and other undesirable species. Nothing could be done to prevent the losses occurring during the winter months.

It was found on investigation that one of the reasons for the protection of beaver in the Foothills and the forest reserves being very desirable was the fact that these animals by the erection of their dams create wonderful fish pools. Had it not been for beaver-dams on numerous small streams, the loss of trout

in some districts would have been very heavy, the only waters found suitable for fish life in many of these streams being in the dams.

Very heavy loss of perch occurred in Hastings Lake during the winter of 1934-35. This loss, obviously not apparent when taking place, could only be estimated after discovery in the spring when the ice disappeared from the lake. Hundreds of thousands of fish drifted on to the beaches, necessitating considerable work in their removal. The co-operation of the Health Department in this matter was greatly appreciated.

During the summer months considerable work was done by the Fisheries staff in clearing obstructions, making channels and otherwise improving conditions in the smaller streams. This work, which is necessary in certain areas, will be continued in the future.

Removal of Predaceous Fish.—The following predaceous fish were removed during the year from trout waters:

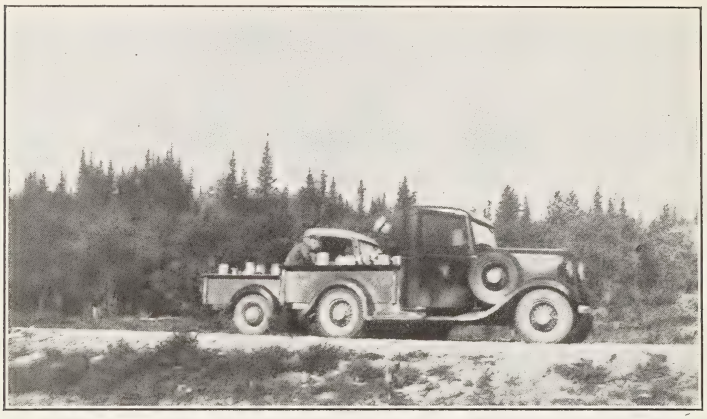
	Sucker	Pike	Ling	Dolly Varden Trout	Total
Willow Creek and tributaries	398	36	.....	19	452
Highwood River and tributaries	378	1	31	6	416
Bow River	2,050	2,850	.....	.....	4,900
Elbow River and tributaries	289	165	.....	.....	454
TOTAL					6,222

Observance of Regulations.—Throughout the period under review prosecutions numbered 66, an increase of 6, with confiscations totalling 126, an increase of 67. The increase of confiscations over the previous year was due mainly to a closer enforcement becoming effective at Lake Wabamun. Practices violating the regulations which included the bootlegging of illegally caught fish in this locality resulted in a much larger return of confiscated articles used for fishing.

When fish are easily procurable in large numbers, with attractive prices offered by the market, the confiscation of illegal apparatus is frequently in evidence. Inspectors and guardians were transferred to places where fishing was heavy and a close watch was at all times kept in those parts of the Province from which reports of such illegal practices were received. The following is a summary of prosecutions which materialized during the year:

Fishing without a license or permit	17
Excess yardage	8
Fishing in close season	8
Fishing with illegal apparatus	6
Purchasing fish when season closed and from closed waters	4
Small trout under minimum size in possession	4
Fishing in closed waters	4
Having no numbers on stakes and nets as provided	4
Netting of game fish	3
Operating a net illegally	2
Operating nets outside area provided	2
Excess of amount of fish over daily needs	1
Pollution of water	1
Refusing to obey written instructions re fishing	1
Illegal retention of live bait for game fish angling	1
TOTAL	66

Irrigation.—In only two of the 45 irrigation schemes in existence in the Province were complaints received regarding loss of fish, the chief one being the loss of whitefish in the irrigation canal flowing into and out of Lake Newell. Generally speaking it is not habitual for whitefish to leave a lake and enter streams. Therefore, not anticipating this occurring at Lake Newell where they were recently introduced, no precautions were taken to prevent them from entering the canal.



Re-icing rainbow fry containers en route to Edson

Whilst these numbers were reported to be large, they were not really lost, as settlers of the district were permitted to catch them for their own use. Precautions will be taken to prevent this occurrence in future.

The second complaint was from the United States Irrigation District. It was found on investigation, however, that the numbers entering the canal were small and it is doubtful whether the small losses occurring would warrant any great expense to prevent fish from making this entry. Further investigations will be carried out in connection with this complaint.

Two hundred and ninety-five applications to divert water for domestic and irrigation purposes were also dealt with during the year and as these applications were mostly for the right to dam coulees and non-perennial streams to conserve spring run-off and would not affect the fisheries, they were all approved.

Pollution of Streams.—The cause of the pollution complaint which arose from the Bow River east of Calgary has finally been determined and remedied. During the year no further complaints were received.

Several complaints of pollution from sawmills were received but no difficulty was experienced in dealing with them, with the exception of one where the offender was finally prosecuted. With the co-operation of the Health Department the control of sewage from towns and cities is rapidly being dealt with and fewer causes for complaint are being received annually.

Fish Culture

With the usual co-operation of the National Parks Branch and the Federal Department of Fisheries the work of fish culture was carried out successfully, although drought conditions in the southern part of the Province were again the cause of considerable worry. This particular menace necessitated much care being exercised in the selection of streams for stocking concerning which there would be a reasonable assurance of continued water supply throughout the year.

For the first time since the transfer of the resources to the Province this Department assumed the entire responsibility in procuring the necessary supply of eggs, no assistance being given by the Federal Government as in previous years. The practice hitherto has been for the authorities at Ottawa to arrange

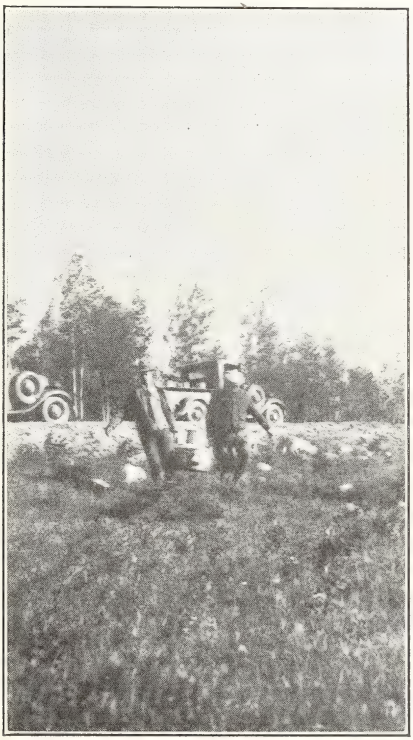
for an exchange of eggs with the United States Bureau of Fisheries, an arrangement by which this Province, and the national parks therein, benefited.

To be assured of the necessary supply of eggs for next season's hatching and re-stocking of streams, arrangements were made during the month of October, 1934 for delivery of eyed eggs to the game fish hatcheries in the following quantities:

To Waterton hatchery	900,000	Rainbow trout
	400,000	Cutthroat trout
To Banff hatchery	600,000	Speckled trout
	550,000	Rainbow trout
	475,000	Cutthroat trout
To Jasper hatchery	200,000	Rainbow trout
TOTAL	3,125,000	

Owing to the difficulty of obtaining Loch Leven or brown trout eggs for stocking in the tributaries of the Red Deer and the North Saskatchewan rivers as in past seasons, it was found necessary to order 500,000 speckled trout eggs for these waters in addition to 100,000 of the same species for planting at Cold Lake.

A total of 75,000 rainbow trout eggs was also ordered for delivery at the Banff hatchery for the purpose of stocking the Upper Kananaskis Lake, which was barren of fish. The speckled trout eggs were received in excellent condition



Carrying rainbow fry container to plant fish in Prairie Creek west of Edson

in December, 1934, the rainbow and cutthroat eggs arriving in good condition also in May and June of the following year. In addition to this supply 150,000 rainbow eggs were ordered for planting in the eyed stage in the upper reaches of Yarrow and Drywood creeks which contained no fish life, and 100,000 cutthroat for the tributaries of the upper Oldman River, which were also unproductive of fish.

In order to re-stock some of the larger rivers, the tributaries of which as already intimated had become dangerously low or had gone dry, it was considered advisable to raise a certain number of fry to a larger size in the hatchery before re-stocking these waters. For this purpose 40,000 were placed in the outside ponds at the Waterton hatchery and fed from eleven to fifteen weeks until they had attained a length of from two and a half to three inches. In addition to the extra expense of feeding, the costs in connection with this form of distribution are much greater than in planting younger and smaller fry.

Only a very few of the larger fish can be handled in each container and then only for short distances where there is no delay in reaching waters to be stocked.

The number of plantings during the year from the Waterton hatchey into provincial waters was 70 as compared with 72 of the previous year. The plantings from the Banff hatchery totalled 93 as compared with 96 of the previous year, whilst the plantings from the Jasper hatchery numbered 23, an increase of 12 in comparison with last year's total. The number of eyed eggs, fry and fingerlings distributed in waters outside the national parks show a total of 2,555,986, an increase of 194,121 over the previous year.

Details of the distribution from the various hatcheries into waters outside the national parks are as follows:

WATERTON
RAINBOW TROUT

Name of Waters	Eyed Eggs	Advanced Fry	Fingerlings No. 1	Fingerlings No. 2
Tributaries to Waterton River:				
Yarrow Creek	52,214	.....	.....	3,000
Drywood Creek	63,820	.....	20,000	3,000
Carpenter Creek	.....	.....	25,000	.....
Cottonwood Creek	.....	.....	15,000	.....
Spring Creek	.....	.....	15,000	.....
Elroy Creek	.....	.....	5,000	.....
Trail Creek	.....	.....	.....	3,760
Tributaries to Oldman River:				
Pincher Creek	.....	.....	30,000	.....
Tributaries to Castle River:				
Mill Creek	.....	.....	25,000	4,000
Gladston Creek	.....	.....	10,000	3,400
Carbondale River	.....	.....	20,000	12,000
Lynx River	.....	.....	10,000	4,000
Beaver dams (sec. 10, t. 5, r. 3, w5m)	.....	.....	.....	3,000
Beaver dams (sec. 27, t. 4, r. 3, w5m)	.....	.....	14,500	.....
Beaver Lake	.....	.....	20,000	.....
Webb Creek	.....	.....	5,000	.....
Unnamed creek (sec. 7, t. 6, r. 3, w5m)	.....	.....	5,000	.....
Unnamed creek (sec. 7, t. 5, r. 3, w5m)	.....	.....	5,000	.....
Gravenstafle	.....	.....	5,000	.....
West Branch of Castle River	.....	.....	20,000	.....
Beavermines Creek	.....	.....	35,000	.....
Tributaries to Crowsnest River:				
Crowsnest Lake	.....	40,000	.....	3,000
Blairmore Creek	.....	.....	20,000	.....
Gold Creek	.....	.....	15,000	.....
Star Creek	.....	.....	5,000	.....
Byron Creek	.....	.....	15,000	.....
Rock Creek	.....	.....	15,000	.....

Tributaries to Willow Creek:				
North Fork Willow Creek	.....	.....	20,000	.....
Johnston Creek	.....	.....	15,000	.....
Patterson Creek	.....	.....	5,000	.....
Burke Creek	.....	.....	10,000	.....
Trout Creek	.....	.....	15,000	.....
One Day Coulee Creek	.....	.....	5,000	.....
Lyndon Creek	.....	.....	15,000	.....
Burton Creek	.....	.....	10,000	.....
Langford Creek	.....	.....	10,000	.....
Chaffen Creek	.....	10,000	.....	.....
Westrup Creek	.....	7,500	.....	.....
Nelson Creek	.....	7,500	.....	.....
Riley Creek	.....	5,000	.....	.....
TOTALS	116,034	70,000	459,500	39,160

CUTTHROAT TROUT

Name of Waters	Advanced Fry	Fingerlings No. 1	Fingerlings No. 2
Tributaries of Oldman River:			
Beaver Creek	20,000	.....	.....
Five Mile Creek	10,000	.....	.....
Station Creek	.....	5,000	.....
Ernst Creek	.....	5,000	.....
Gap Beaver Dams	.....	20,000	.....
Heath Creek	.....	15,000	.....
Olin Creek	.....	10,000	.....
Racehorse Creek	.....	25,000	.....
Unnamed creek (sec. 30, t. 10, r. 3, w5m)	.....	5,000	.....
Unnamed creek (sec. 29, t. 10, r. 3, w5m)	.....	6,000	.....
Sharples Creek	.....	15,000	.....
Damon Creek	.....	5,000	.....
North Creek	.....	5,000	.....
Adair Creek	.....	10,000	.....
Mead Creek	.....	5,230	.....
Callum Creek	.....	25,000	.....
Tributaries of Livingstone River:			
Twin Creek	.....	10,000	.....
Coat Creek	.....	10,000	.....
Unnamed creek (sec. 36, t. 12, r. 4, w5m)	.....	5,000	.....
Rifle Creek	.....	10,000	.....
Tributaries of St. Mary's' River:			
Lee Creek	.....	25,000	.....
Tough Creek	.....	25,000	.....
TOTALS	30,000	241,230	.....

BANFF

RAINBOW TROUT

Tributary to Bow River:			
Upper Kananaskis Lake	75,000	.....	.....
Tributaries to Sheep Creek:			
King Creek	5,000	.....	.....
Fisher Creek	15,000	.....	.....
Ware Creek	10,000	.....	.....
North Sheep Creek	10,000	.....	.....
Canyon Creek	5,000	.....	.....
Gorge Creek	10,000	.....	.....
Junction Creek	20,000	.....	.....
Blue Rock Creek	5,000	.....	.....
South Sheep Creek	20,000	.....	.....
Tributaries to Highwood River:			
Flat Creek	20,000	.....	.....
Sullivan Creek	20,000	.....	.....
Ings Creek	1,000	.....	.....
Spring Creek	10,000	.....	.....
Greenfeed Creek	10,000	.....	.....
Salt Creek	10,000	.....	.....
Etherington Creek	20,000	.....	.....
Cataract Creek	20,000	.....	.....
Pekisko Creek	10,000	.....	.....
Tributaries to Elbow River:			
Stringer Creek	.....	10,000	.....
Rennick Creek	.....	10,000	.....
Young Creek No. 1	.....	5,000	.....
Young Creek No. 2	.....	5,000	.....
Mays Creek	.....	10,000	.....
Bragg Creek	.....	40,000	.....
Mickle Creek	.....	5,000	.....
Lott's Creek	.....	5,000	.....
Mays Creek	.....	5,000	.....

Name of Waters	Advanced Fry	Fingerlings No. 1	Fingerlings No. 2
Pirmez Creek	.....	15,000	.....
Robinson Creek	.....	5,000	.....
Thomas Creek	.....	5,270	.....
Sylvester Creek	.....	10,500	.....
Hidden Creek	.....	5,250	.....
Ranger Creek	.....	10,500	.....
Crawford Creek	.....	5,000	.....
TOTALS	296,000	151,520	.....

SPECKLED TROUT FRY

Tributary to Beaver River:			
Cold Lake	85,000	.....	.....
Tributaries to Red Deer River:			
Gibson Creek	.....	7,500	.....
Twin Spring	.....	5,000	.....
Waltermeyer Creek	.....	2,500	.....
Stever Creek	.....	10,000	.....
Spring Creek	.....	15,000	.....
Sanford Creek	.....	7,500	.....
Spring Creek No. 1	.....	10,000	.....
Spring Creek No. 2	.....	5,000	.....
Spring Creek No. 3	.....	10,000	.....
Spring Creek No. 4	.....	7,500	.....
Dennison Creek	.....	15,000	.....
Grant Creek	.....	20,000	.....
Gastle Creek	.....	5,000	.....
Little Beaver	.....	5,000	.....
Griswald Creek	.....	5,000	.....
West Stoney Creek	.....	20,000	.....
East Stoney Creek	.....	5,000	.....
Purcell Spring Creek	.....	5,000	.....
East Stoney Creek	.....	20,000	.....
Beaver Creek	.....	15,000	.....
Stauffer Creek	.....	.....	15,000
Crooked Creek	.....	.....	20,000
Williams Creek	.....	.....	40,000
Fallen Timber Creek	.....	.....	12,500
Little Red Deer River	.....	.....	12,500
South Raven Creek	.....	35,000	.....
Tributaries to Clearwater River:			
South Prairie Creek	.....	.....	30,000
Moose Creek	.....	.....	10,000
North Prairie Creek	.....	.....	30,000
Cold Creek	.....	.....	10,000
Clear Creek	.....	.....	5,000
Tributaries to Baptiste River:			
Chambers Creek	.....	.....	40,000
Lawrence Creek	.....	.....	10,000
Ruth Creek	.....	.....	20,000
TOTALS	85,000	230,000	255,000

CUTTHROAT TROUT

Tributaries to Bow River:			
Bear Creek	.....	10,000	.....
Exshaw Lake	.....	40,000	.....
Policeman Creek	.....	20,000	.....
Gap Creek	.....	5,000	.....
Jumping Pound Creek	.....	10,000	.....
Spring Creek	.....	5,000	.....
Backwater Creek	.....	5,000	.....
Coxcomb Creek	.....	10,000	.....
Muskeg Creek	.....	5,000	.....
Lake Creek	.....	20,000	.....
Spencer Creek	.....	10,000	.....
Big Hill Creek	.....	30,000	.....
Ghost Lake	.....	40,000	.....
Ghost Lake	.....	30,000	.....
Cold Creek	.....	20,000	.....
Bowfort Creek	.....	10,000	.....
Ghost Lake	.....	40,200	.....
Sibbald Creek	.....	20,000	.....
Moose Creek	.....	10,000	.....
Tributary to Elbow River:			
McLean Creek	.....	10,000	.....
Tributaries to Ghost River:			
Haymeadow Creek	.....	35,000	.....
Eau Clair Creek	.....	30,000	.....
Muskeg Creek	.....	10,000	.....
TOTALS	.....	425,200	.....

JASPER

RAINBOW TROUT

Name of Waters	Advanced Fry	Fingerlings No. 1	Fingerlings No. 2
Sansell Lake (s.w. ¼, sec. 8, t. 53, r. 19, w5m), No outlet	10,000	.....	.....
Deacon Lake (sec. 9, t. 53, r. 15, w5m), No outlet	10,000	.....	.....
Reflection Lake (sec. 22, t. 54, r. 16, w5m), No outlet	10,000	.....	.....
Tributaries to McLeod River:			
Sundance Creek	10,000	.....	.....
Mercoal Creek	5,000	.....	.....
Unnamed Creek (Mile 45)	5,000	.....	.....
Whitehorse Creek	10,000	.....	.....
Prospect Creek	5,000	.....	.....
Tye Creek	5,000	.....	.....
McKenzie Creek	5,000	.....	.....
Watson Creek	4,000	.....	.....
Beaver dams (near Cadomin)	4,000	.....	.....
Mary Gregg Lake	10,000	.....	.....
Berry's Creek	4,342	.....	.....
Tributary to Sundance River:			
Horse Creek	10,000	.....	.....
Tributaries to Embarras River:			
Byron Creek	5,000	.....	.....
Chance Creek	5,000	.....	.....
Middle fork, Embarras River	5,000	.....	.....
Dummy Creek	5,000	.....	.....
Erith Creek	10,000	.....	.....
Tributaries to Pembina River:			
Centre Creek	10,000	.....	.....
Little Pembina River	5,000	.....	.....
Crooked Creek	5,000	.....	.....
TOTALS	157,342	.....	.....

RECAPITULATION

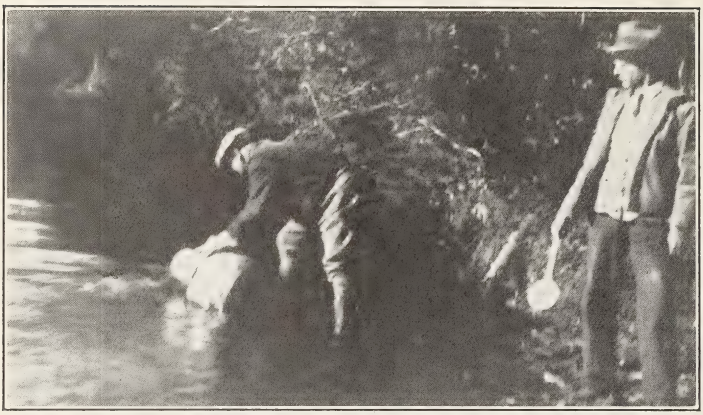
Hatchery	Eyed Eggs	Advanced Fry	Fingerlings No. 1	Fingerlings No. 2
Waterton	116,034	100,000	700,730	39,160
Banff	.....	381,000	806,720	255,000
Jasper	.....	157,342	.....	.....
TOTALS	116,034	638,342	1,507,450	294,160

Eyed Eggs	116,034
Advanced Fry	638,342
Fingerlings No. 1	1,507,450
Fingerlings No. 2	294,160
Total distribution from the three hatcheries for the fiscal year ended March 31st, 1936	2,555,986

During August tenders were submitted and contracts awarded for a supply of eyed eggs for next season's stocking. The Loch Leven eggs were for delivery to the Banff hatchery not later than January 31st, 1936, and those of the cutthroat and rainbow before June 15th, 1936, as follows:

Hatchery	Number	Species
Waterton	700,000	Rainbow trout eggs
	300,000	Cutthroat trout eggs
Banff	600,000	Rainbow trout eggs
	400,000	Cutthroat trout eggs
	500,000	Lock Leven trout eggs
Jasper	200,000	Rainbow trout eggs
TOTAL	2,700,000	

Lesser Slave Lake Hatchery.—This hatchery, which had been closed since May, 1933 was again placed in operation in the fall of 1935. The necessary staff was engaged at the spawning camp at Whitefish River about the first of October to install trays and retainers in readiness for the collection of whitefish eggs. The hatchery staff was engaged as required when the first eggs arrived from the spawning camp.



Planting rainbow fry in Prairie Creek west of Edson

The first collection of eggs was made on the 30th of October and the last on the 14th of November. The total collection made at Whitefish River was 158,700,000. As the capacity of the hatchery is approximately 133,000,000, 20,000,000 fertilized eggs were planted in the Whitefish River, 5,500,000 were planted in Lesser Slave Lake and the balance, 133,200,000, were placed in the hatchery. From November 16th to March 31st the total loss of eggs due to various causes was 19,702,000, leaving a balance of eggs in the hatchery at that date of 113,498,000.

Examination of Waters.—The following waters were examined with a view to stocking should they be found suitable for fish life:

Name of Lake	Location
McBride Lake	T. 7, r. 26, w4m.
R. L. Jackson's Pond	Sec. 32, t. 3, r. 28, w4m.
Lake "C"	Sec. 9, t. 43, r. 1, w4m.
Lake "A"	Sec. 3, t. 43, r. 1, w4m.
Lake No. 11	Sec. 24 and 26, t. 42, r. 1, w4m.
Dilberry Lake	Sec. 36, t. 41, r. 1, w4m.
Killarney Lake	T. 41 and 42, r. 1, w4m.
Lake No. 2	Sec. 26 and 27, t. 41, r. 1, w4m.
Lake No. 3	Sec. 35 and 36, t. 41, r. 1, w4m.
St. Lawrence Lake	Sec. 11 and 12, t. 39, r. 1, w4m.
Lake No. 1	Sec. 32, t. 36, r. 3, w4m.
Mather's Pond	Sec. 4, t. 37, r. 5, w4m.
Nelson's Pond	Sec. 33, t. 33, r. 5, w4m.
Lake No. 2	Sec. 35, t. 47, r. 6, w4m.
Lake "A"	W½ sec. 20, t. 49, r. 7, w4m.
Lake "B"	Sec. 31, 32 and 33, t. 49, r. 7, w4m.
Chappice Lake	Sec. 16 and 17, t. 14, r. 3, w4m.
Wager's Pond	Sec. 33, t. 35, r. 28, w4m.
Gusa's Pond	N.W.¼ sec. 7, t. 29, r. 14, w4m.
Lake No. 1, Leedale	Sec. 18, t. 42, r. 4, w4m.
Rose Creek (Wolf Creek)	T. 42 and 46, r. 4, w5m.
Lake No. 2	S.W.¼ sec. 27, t. 48, r. 6, w4m.
East Berry Creek	Sec. 35, t. 23, r. 11, w4m.

Of these lakes examined 14 were found to be unsuitable for fish life. One was found to be suitable for trout and 8 were found to be suitable for perch or pike. Wolf Creek requires further examination.

In addition to these inspections the following waters were stocked with rainbow trout and perch:

Jackson's Pond	Sec. 32, t. 3, r. 28, w4m	Rainbow trout
Lake "C"	Sec. 9, t. 43, r. 1, w4m	Perch
Lake "A"	Sec. 33, t. 43, r. 1, w4m	Perch
Lake No. 11	Sec. 23, t. 42, r. 1, w4m	Perch

As previously stated, most gratifying reports have been received during the year of success in the introduction of Loch Leven trout into the tributaries of the North Saskatchewan and Red Deer rivers. Some excellent specimens of these fish were taken during the year and from the reports of various anglers it is evident that fishing for this species of trout in these rivers and their tributaries is improving from year to year. Reports on the success of the introduction of rainbow trout into the streams in southern Alberta are also encouraging. The same might be said with regard to the introduction of perch and pickerel into various small lakes where previously no fish were found.

Bird Sanctuaries and Public Shooting Grounds

During the summer of 1935, in conjunction with a representative of the Dominion Parks Branch, examinations were made of a number of the bird sanctuaries and public shooting grounds, with a view to determining those which were no longer suitable for this purpose and which, therefore, should be cancelled. Drought conditions during the last ten or fifteen years have caused some of these areas to be no longer of any great value as water-fowl sanctuaries or shooting grounds. Other areas were examined on recommendations from various fish and game associations with a view to consideration of their suitability as sanctuaries to replace those which might be cancelled.

Regulations Appertaining to Pleasure Boats

The enforcement of regulations appertaining to pleasure boats was again carried out by the Fisheries inspectors without much difficulty, a few complaints regarding the operation of speed boats at some of the summer resorts being received which were quickly attended to. The nuisance of open mufflers was occasionally reported by cottagers as an annoyance. All complaints were given the necessary attention.

ITEMIZED REVENUE OBTAINED DURING FISCAL YEAR 1935-36

Month	Fishermen's Licenses	Domestic Licenses	Commercial Licenses	Boat Licenses	Angling Permits	Sales	Sundry	Total
1935—								
April	$ 15.00	$ 12.00	.....	.....	$ 2.00	.....	$ 16.66	$ 45.66
May	1,225.00	100.00	$ 70.00	$ 10.00	6.75	$ 14.65	16.66	1,443.06
June	200.00	236.00	10.00	30.00	1,481.00	25.60	16.66	1,999.26
July	90.00	84.00	.....	60.15	3,270.00	.....	16.66	3,520.81
August	465.00	66.00	90.00	55.00	1,618.75	83.20	16.66	2,394.61
September	370.00	42.00	80.00	10.00	1,018.25	29.00	16.66	1,565.91
October	40.00	14.00	.....	.....	1,140.00	1.65	16.66	1,212.31
November	515.00	30.00	.....	.....	464.00	78.02	16.66	1,103.68
December	2,645.00	526.00	20.00	.....	120.00	31.95	16.66	3,359.61
1936—								
January	1,980.00	88.00	.....	.....	12.00	81.03	16.66	2,177.69
February	475.00	40.00	.....	.....	.....	129.33	16.66	660.99
March	565.00	18.00	.....	.....	48.00	482.08	16.74	1,129.82
TOTALS	$ 8,585.00	$ 1,256.00	$ 270.00	$ 165.15	$ 9,180.75	$ 956.51	$ 200.00	$20,613.41

Accounting Division

REPORT OF THE ACCOUNTANT, I. N. McKINNON

A surplus of $647,931.21 on income account was shown for the fiscal year ending March 31, 1936, an increase of $1,402.24 over the previous year.

Revenue for the year was $1,152,475.78, a decrease of $17,020.37. Expenditure was $504,544.57, a decrease of $18,422.61.

Total cash received from all sources amounted to $1,310,890.21, particulars of which are given in Statement "A".

Following the reorganization of the Department in April, 1935, changes were made in the system of recording revenue in order to conform with the new arrangement of administration and for the purpose of increased efficiency.

The revenue is now recorded under seven main headings, namely, Lands and Grazing Branch, Timber Branch, Mining Lands Branch, School Lands Branch, Fisheries Branch, Game Branch and Miscellaneous. Comparison of revenue with the previous fiscal year under the above headings is shown under Statement "B".

The allocation of all revenues received to the various land agencies, forest reserves, etc., from which they were derived, has been discontinued.

INDEX TO STATEMENTS

A.—Statement of Cash Receipts from all sources.

B.—Statement of Income Revenue by Branches.

C.—Statement of Cash Receipts, School Lands Branch.

D.—School Lands Trust Fund Balance Sheet.

E.—Statement of Alberta School Lands Sales Revenue Account.

F.—Statement of Collections on Tax Recovery Lands.

G.—Statement of Homestead Entries Granted.

STATEMENT A.

STATEMENT OF CASH RECEIPTS FROM ALL SOURCES

From April 1, 1935 to March 31, 1936

	Gross Receipts	Refunds	Net Revenue
INCOME ACCOUNT:			
Lands and Grazing Branch:			
Cancellation Fees	$ 94.00	$ 4.00	$ 90.00
Casual	3,914.10	13.85	3,900.25
Cultivation Fees, Rentals, etc.	1,454.55	177.11	1,277.44
Filing Authority Fees	948.00	2.00	946.00
Fur Farm Fees and Rentals	418.75	25.00	393.75
General Sales Interest	2,609.55	.30	2,609.25
Grazing Permits, Fees, Rentals, etc.	45,743.21	650.64	45,092.57
Hay Permits, Fees, Dues, etc.	3,071.26	380.50	2,690.76
Homestead Fees	15,280.00	50.00	15,230.00
Improvement Collection Fees	6,403.30	149.80	6,253.50
Surface Rentals	2,427.00	.....	2,427.00
Timber Branch:			
Casual	1,426.05	.....	1,426.05
Timber Permits, Fees, Rentals, etc.	303,522.68	984.42	302,538.26
Mining Lands Branch:			
Casual	4,276.70	27.50	4,249.20
Coal Fees, Rentals, etc.	118,162.55	421.00	117,741.55
Coal Mines Act Sundry Revenue	4,404.80	76.00	4,328.80
Coal Royalties	186,704.68	13.45	186,691.23
Petroleum and Natural Gas:			
Fees, Rentals, etc.	116,182.34	638.94	115,543.40
Royalties	117,468.36	.....	117,468.36
Drilling Permits	50.15	.....	50.15
Quarrying Fees, Rentals, etc.	1,490.94	80.00	1,410.94

Fisheries Branch:			
Angling Permits	9,997.50	2.00	9,995.50
Boat Licenses	165.15	.....	165.15
Casual	1,156.51	.....	1,156.51
Fishing Licenses	10,111.00	10.00	10,101.00
School Lands Branch:			
Interest on Sales	67,256.75	66.30	67,190.45
Miscellaneous	138,632.35	34,235.61	124,396.74
Miscellaneous:			
Casual	4,993.79	90.65	4,903.14
Reimbursement of Salaries and Expenses	249.95	1.00	248.95
Tax Recovery Office Fees	1,707.90	87.10	1,620.80
Services and Supplies	339.08	.....	339.08
TOTAL INCOME ACCOUNT	$1,190,662.95	$ 38,187.17	$1,152,475.78
CAPITAL ACCOUNT:			
Land Sales Principal	9,702.65	59.00	9,643.65
TOTAL INCOME AND CAPITAL ACCOUNTS	$1,200,365.60	$ 38,246.17	$1,162,119.43
UNAPPLIED RECEIPTS CARRIED FORWARD: (Subject to Refund)			
Improvements	16,409.22	8,805.38	7,603.84
Suspense	30,229.29	.....	30,229.29
School Lands Cultivation Crop Shares	1,000.00	.....	1,000.00
Land Patents Cultivation Crop Shares	300.00	.....	300.00
	$1,248,304.11	$ 47,051.55	$1,201,252.56
TRUST ACCOUNT:			
School Lands Trust Fund	$ 62,555.30		
Homesteaders' Trust Monies	23.60		
Petroleum and Natural Gas Cash Bond	7.20		
TOTAL CASH RECEIPTS	$1,310,890.21		

STATEMENT B.

STATEMENT OF INCOME REVENUE BY BRANCHES FOR FISCAL YEARS ENDING March 31, 1935 and March 31, 1936

	Fiscal year ending March 31, 1935	Fiscal year ending March 31, 1936
Lands and Grazing Branch	$ 113,198.92	$ 80,910.52
Timber Branch	227,463.45	303,964.31
Mining Lands Branch	477,296.68	547,483.63
Fisheries Branch	19,949.89	21,418.16
School Lands Branch	327,787.36	191,587.19
Miscellaneous	3,799.85	7,111.97
	$1,169,496.15	$1,152,475.78

STATEMENT C.

SCHOOL LANDS BRANCH
STATEMENT OF CASH RECEIPTS
April 1, 1935 to March 31, 1936

	Receipts	Refunds	Net Revenue
INCOME ACCOUNT:			
Sales: Interest	$ 67,256.75	$ 66.30	$ 67,100.45
Cultivation Fees, Rentals, etc.	78,734.32	18,787.37	59,946.95
License of Occupation and Special Leases	290.00	80.15	209.85
Timber Permits, Fees, Dues, etc.	18,616.37	843.56	17,772.81
Grazing Fees, Rentals, etc.	21,756.98	12,394.53	9,362.45
Hay Fees, Dues, etc.	972.30	116.25	856.05
Coal Fees, Rentals, etc.	5,398.41	.....	5,398.41
Coal Mining Royalties	19,779.76	.....	19,779.76
Petroleum and Natural Gas: Fees, Rentals, etc.	12,825.67	1,950.00	10,875.87
Petroleum and Natural Gas: Royalties	699.33	.....	699.33
Miscellaneous	559.01	63.75	495.26
	$226,889.10	$ 34,301.91	$192,587.19
Less amount carried forward to provide for tax refunds on Cultivation Lease Crop Shares	.....	.....	1,000.00
	$226,889.10	$ 34,301.91	$191,587.19
TRUST ACCOUNT:			
School Lands Sales Principal	62,555.30	.....	62,555.30
TOTAL INCOME AND TRUST ACCOUNTS	$289,444.40	$ 34,301.91	$254,142.49

STATEMENT D.

ALBERTA SCHOOL LANDS TRUST FUND
BALANCE SHEET—MARCH 31, 1936

ASSETS

Cash in Bank and on Hand		$ 6,142.81	
Investments:			
Dominion of Canada Debentures	$9,888,647.07		
Accrued Interest	302.80		
		$ 9,888,949.81	
Accounts Receivable:			
Undue Principal	$1,984,051.43		
Arrears Principal	1,643,008.71		
		3,627,060.14	
			$13,522,152.76

LIABILITIES

Alberta School Lands Trust Fund	$13,522,143.72	
Suspense	9.04	
		$13,522,152.76

STATEMENT E.

ALBERTA SCHOOL LANDS SALES
REVENUE ACCOUNT
FOR THE PERIOD APRIL 1, 1935 TO MARCH 31, 1936

Arrears Interest as at March 31, 1935	$1,333,378.58	
Interest charged	332,338.55	
Interest Revenue		$ 67,190.45
Interest Bonus granted		67,039.33
Interest on Cancelled Sales written off		219,321.10
Arrears Interest as at March 31, 1936		1,312,166.25
	$1,665,717.13	$1,665,717.13

STATEMENT F.

STATEMENT OF COLLECTIONS ON TAX RECOVERY LANDS
April 1, 1935 to March 31, 1936

Improvements	$ 1,167.47
Cultivation Rentals, etc.	799.57
Cultivation Crop Shares	3,737.27
Miscellaneous Rentals	252.69
Grazing Permits	905.09
Grazing Rentals, etc.	1,519.71
Sales, Principal	464.45
Sales, Interest	23.20
	$ 8,869.45
Office Fees	1,620.80
	$ 10,490.25

STATEMENT G.

HOMESTEAD ENTRIES GRANTED
April 1, 1935 to March 31, 1936

	Homesteads	Second Homesteads	Soldier Grants	Total	Entries to Women
Edmonton Land District	820	102	7	929	254
Calgary Land Agency	66	21	....	87	24
Lethbridge Land Agency	2	7	....	9	1
Peace River Land Agency	441	56	6	503	176
	1,329	186	13	1,528	455

ANNUAL REPORT

OF THE

Department of Lands and Mines

OF THE

PROVINCE OF ALBERTA

FOR THE

Fiscal Year Ended March 31st 1937

PUBLISHED BY ORDER OF THE LEGISLATIVE ASSEMBLY

EDMONTON:
PRINTED BY A. SHNITKA, KING'S PRINTER
1938

To the Honourable J. C. Bowen,
Lieutenant-Governor of the Province of Alberta.

SIR:

I have the honour to submit the report of the Department of Lands and Mines for the fiscal year ended March 31st, 1937.

I have the honour to be, Sir,

Your obedient servant,

N. E. TANNER,
Minister of Lands and Mines.

EDMONTON, February 15th, 1938.

TABLE OF CONTENTS

PAGE

REPORT OF THE DEPUTY MINISTER 9

I.—PROVINCIAL LANDS ADMINISTRATION

Report of the Provincial Lands Division 20

II.—SCHOOL LANDS ADMINISTRATION

Report of the School Lands Division 23

III.—MINING LANDS ADMINISTRATION

Report of the Mining Lands Division 25

IV.—TECHNICAL DIVISION

Report of the Technical Division 30

V.—PETROLEUM AND NATURAL GAS ADMINISTRATION

Report of the Petroleum and Natural Gas Division 36

VI.—FORESTRY ADMINISTRATION

Report of the Forestry Division 47

VII.—ACCOUNTS ADMINISTRATION

Report of the Accounting Division 77

GOVERNMENT OF ALBERTA

DEPARTMENT OF LANDS AND MINES

Resulting from the transfer on October 1st, 1930 of Alberta's natural resources from federal to provincial control, the Department of Lands and Mines was on this date brought into being by the Alberta Government. The general purpose of the new Department was to be one of supervision and management of the resources in question.

Ministers of the Department, responsible at different periods for this administration, appear as follows:

Hon. R. G. Reid, appointed October 2nd, 1930,
Hon. Hugh W. Allen, appointed July 10th, 1934,
Hon. Charles C. Ross, appointed September 3rd, 1935,
Hon. N. E. Tanner, appointed January 5th, 1937.

CHIEF OFFICERS
DEPARTMENT OF LANDS AND MINES
March 31st, 1937

Honourable N. E. Tanner ..... *Minister of Lands and Mines*

John Harvie ..... *Deputy Minister of Lands and Mines*

T. C. Rankine ..... *Departmental Solicitor*

D. H. Boles ..... *Director of Lands*

J. W. Stafford ..... *Superintendent of School Lands*

J. W. Hamilton ..... *Superintendent of Mining Lands*

T. W. Dalkin ..... *Superintendent of the Technical Division*

C. W. Dingman ..... *Director of Petroleum and Natural Gas*

T. F. Blefgen ..... *Director of Forestry*

J. A. Hutchison ..... *Assistant Director of Forestry*

F. W. Neilson ..... *Chief Timber Inspector*

I. N. McKinnon ..... *Accountant*

R. J. Dean ..... *Inspector of Revenue*

A. A. Millar ..... *Chief Inspector, The Coal-mines Regulation Act*

M. Gossip ..... *Agent, Calgary Land Agency*

R. Cruickshank ..... *Agent, Lethbridge Land Agency*

J. J. E. Clarke ..... *Agent, Peace River Land Agency*

J. L. Irwin ..... *Statistician*

REPORT

OF THE

Department of Lands and Mines,

1936-37

Honourable N. E. Tanner,
Minister of Lands and Mines,
Edmonton.

SIR:

I have the honour to submit the seventh Annual Report of the Department of Lands and Mines for the fiscal year ended March 31st, 1937.

A departmental surplus on income account of $996,719.59 is shown for this period in comparison with the previous year's surplus of $647,931.21, revealing a satisfactory increase of $348,788.38.

Before we deal, with the year's work I wish to make reference to the Department's accomplishments since the natural resources of Alberta were transferred to the province for administration.

For over thirty years, or to be more specific from September 1st, 1905, when the Province of Alberta was created, an insistent demand has been made at all times upon the federal government by the people of this province for the transfer and control of Alberta lands and minerals. A demand which was terminated by the agreement of December 14th, 1929.

At the time this agreement was made the Government of the day, patterning an administration upon the Department of the Interior, Ottawa, visualized that for at least five years no benefits of any importance would accrue to the people of Alberta. They were in fact convinced that an annual loss over this initial period would be experienced.

Notwithstanding these fears, however, the Department during its first six and a half years of existence has produced the following surpluses on income account:

		Surplus
*October 1st, 1930 to March 31st, 1931 (latter half of fiscal year)		$348,768.54
Fiscal Year	1931-32	341,859.06
	1932-33	289,616.15
	1933-34	185,072.04
	1934-35	646,528.97
	1935-36	647,931.21
	1936-37	996,719.59

In the years immediately prior to the transfer the Department of the Interior sustained very considerable loss in their administration of these same resources and anyone sufficiently interested can find data in the annual reports of that Department or in the reports of the Auditor-General of Canada.

Changing from retrospect to the present and also future there are many points regarding the province's natural resources the discussion of which is not only of very real interest but of vital importance to the people of Alberta. Coal for example may well be cited as an outstanding if somewhat contentious subject.

*October 1st, 1930, date upon which the Department of Lands and Mines was formed.

The bulk of Canada's coal reserves, bituminous, sub-bituminous and lignite, are in this province. A noticeable percentage of the world's visible supply as a matter of fact is in Alberta and we are presumably assisted by a subvention freight rate to Ontario of $2.50 per net ton where the ordinary rate is $8.00 or over.

In spite of these factors, in 1935 we only shipped 64,659 tons of coal to Ontario when in the same year that province imported from the United States, in addition to shipments from Nova Scotia and New Brunswick, 10,840,950 tons.

Our shipments to Ontario in this particular year in comparison to these imports from the United States, on which tariffs up to 75c per ton were paid, represent an insignificant one-half of one per cent.

This illuminating and decidedly discouraging result, which is repeated year by year, is attributable solely to the fact that the subvention rate is not sufficient to enable Alberta coal to meet a competitive price in eastern Canada.

This revelation of course finishes at only one conclusion. A conclusion which shows that pending a fair and reasonable adjustment of this situation, Alberta, holding the bulk of Canada's coal reserves, must continue to be largely inactive regarding their development while eastern Canada continues to be supplied with her requirements from foreign countries.

Our known deposits of bituminous sands in the present accessible area have been estimated to contain over one billion barrels of oil, and two companies are at work to produce them commercially. In fact, before the advent of the Turner Valley crude oil discovery, it had been thought that our oil resources might be confined to recoveries from these deposits. The discovery of a crude oil field, however, in the south end of Turner Valley, introduced by the most successful completion of the Turner Valley Royalties well in the north-west quarter of section 28, township 18, range 2, west 5th meridian on June 16th, 1936, gave quite an impetus to oil-drilling operations throughout the province.

Early in 1936 the first step was taken by the amendment of the Petroleum and Natural Gas Regulations so that the amount expended in drilling operations, exclusive of the cost of machinery and casing employed, but including reasonable depreciation, would be established as a credit in the books of the Department and such expenditure used to satisfy the rental of the petroleum and natural gas locations held by the lessee. At the same time provision was made so that a lessee who had acquired the petroleum and natural gas rights in freehold land contiguous to his Crown lease could, by an arrangement with the Minister, consolidate his operations in respect to the whole by the installation of machinery and equipment on one or more of the locations forming a part of the group. Also, the area of the group or consolidation was enlarged to a maximum of 50,000 acres and even though the expenditures were made on freehold land it was permissible to establish a credit of an amount not exceeding 50% of the approved expenditures which could be used over a period of three years to the payment of rentals of petroleum and natural gas leases within the group upon which oil or natural gas in remunerative quantities had not been found.

An increase was granted also on account of excess expenditures, making the allowable 50% instead of 35%, and these concessions together with the action taken in March of the same year to rebate the royalty in the case of a discovery well situate in "wild-cat" territory, all gave an assurance of the Government's intention to further the development of the natural resources.

At the same time as these concessions were being made in the leasing regulations a further encouragement was being given to companies to explore "wild-cat" territory by the establishment of regulations for the issue of permits to prospect for petroleum and natural gas.

These permits could be taken out for six months upon payment of 5c for each acre covered by the application or for twelve months upon payment of 10c for each acre. Extensions of the permit were permissible under certain conditions upon payment of a monthly rental at 1c for each acre, but the work of the investigation had to be completed within the maximum of two years.

Under these amended regulations 585,882.78 acres were prospected during the period under review resulting in a total acreage of 776,505 being leased by the end of the year for actual drilling operations. It is anticipated with the very encouraging results so far obtained that many areas in addition to the Turner Valley will prove to contain crude oil.

At this juncture I would like to point out that while the development of the oil resources has unquestionably been the most spectacular section of our administration, it has by no means resulted in any lessening of effort to improve regulations for development of the other vast resources of the province. For this reason, therefore, it is of interest to inspect the work of the Department in its endeavour to encourage introduction of new capital with a view to the development of Alberta's great and widespread natural wealth.

Department's Increased Revenue and Production, 1936-37

Revenue for the year shows an increase of $494,020.31 with expenditures increased by $145,231.93. Amongst details of these revenue increases as reported by the various divisions of the Department the following are given:

Mining lands, $209,763.83; school lands, $102,176.29; lands and grazing, $30,699.87; and timber, $27,072.22.

Petroleum production was increased by 198,065 barrels and gas consumption by 52,552 Mcf. Coal produced during the calendar year 1936 showed an increase of 233,402 tons over the preceding year. Coke production increased by 1,811 tons and briquettes by 2,203 tons. Additional electric power, increased by 1,800,870 k.w. hrs., was used in the operation of Alberta coal-mines during the year.

Shale mined during the calendar year showed an increased production of 4,330 tons with an increase of 1,614,084 bricks manufactured therefrom; cement production increased 23,979 barrels; lime, 2,545 tons; and stone, 11,634 tons.

Provincial Lands Administration

Details of all matters pertaining to provincial lands' administration are given in the section of this Report belonging to that Division.

Homestead Entries.—First and second homestead entries and soldier grants during the year totalled 1,432 covering approximately 229,120 acres in comparison with 1,528 representing an approximate acreage of 244,480 for the previous fiscal year.

Comparative statement showing totals of homestead entries and soldier grants from 1930-31 to 1936-37 follows. Fuller details of this information appear in the Accounting Division's section of this Report and in similar sections of the departmental Annual Reports of preceding years.

HOMESTEAD ENTRIES GRANTED

Fiscal Year	Homesteads	Second Homesteads	Soldier Grants	Total	Homesteads Granted to Women
1930-31	3,042	557	149	3,748	.....
1931-32	3,876	522	30	4,428	1,521
1932-33	3,112	358	29	3,499	976
1933-34	2,984	696	26	3,706	1,011
1934-35	2,425	325	30	2,780	835
1935-36	1,329	186	13	1,528	455
1936-37	1,296	129	7	1,432	479
Totals	18,064	2,773	284	21,121	5,277
	Decrease	Decrease	Decrease	Decrease	Increase
This year in comparison with last	33	57	6	96	24

NOTE.—Homesteads for women were not available until 1932. The total number of women's homesteads as shown in the above statement is included in the first homestead total.

Grazing.—Information showing the status of both dominion and provincial ranch grazing leases, giving details of applications, amalgamations and areas cancelled, is given for the fiscal year under review in the Director of Lands' section of this Report.

Provincial Grazing Reserve.—The area covered by township 1, range 19, west of the 4th meridian, continued during this period as a grazing reserve with the feed and water supply for the stock, limited to 500 head, proving sufficient. During the winters of 1936 and 1937 a limited number of stock, due to drought conditions in the south, was permitted to graze on this reserve.

Consolidation of Grazing Accounts

Due to drought and low prices prevailing for livestock the ranching industry became seriously involved in the payment of rentals and taxes on leases held from the province.

Meetings took place in the fall of 1936 and again in January of 1937 with representatives of the Western Stock Growers' Association, resulting in substantial remissions being made and consolidating indebtedness so that lessees might have the option of paying arrears in seven, equal, consecutive, annual instalments; the first instalment being due and payable on January 1st, 1938.

A further concession was made in which a discount was given for arrears paid during the year 1937, a concession concerning which many ranchers took advantage.

School Lands Administration

Details of the administration of this Division are given in the section of this Report reserved for the Superintendent of School Lands.

Farmers' Creditors Arrangement Act.—Attention is emphasized in this section of the fact that the Board of Review operating under this Act has not as yet authorized any of the anticipated compromises with respect to school lands' sales.

Increase in Revenue.—The revenue of this Division, after deducting trust funds amounting to $55,799.89 being payment on account of principal on school lands' sales, shows the most appreciable increase of $102,176.29 in comparison with last year's revenue.

As stated by the Superintendent of School Lands, this increase is principally due to the decided improvement in grain prices for the year. An improvement which naturally had a most favourable reflection on grain received by the Department on crop share leases netting thereby a larger revenue.

Mining Lands Administration

Leases Dealt With.—As given in last year's Report, an itemized statement dealing in the status of leases for the period under review is shown in the Mining Lands section.

The statement covers leases in connection with petroleum and natural gas from provincial lands, school lands and Crown reserves, coal from provincial lands and school lands, quarrying, quartz mining, salt and gypsum, bituminous sands, dredging and miscellaneous.

Totals are given between October 1st, 1930, date of the natural resources transfer to the province, and March 31st, 1937. Leases active at date of this transfer totalled 19,635, issued since that date, 5,135; divided, 83; cancelled, 18,499; renewed, 183; active as at March 31st, 1937, 6,171. The areas covered by these figures are given in detail in a separate statement.

Additional information covering fees, rentals, bonus collected and royalties on petroleum, natural gas and coal, together with other information of a general nature, is also given. The statement of coal royalties, which appeared last year, is repeated and carried on to 1937.

Revenue.—The greatest increase amongst departmental revenues for the year is accorded to the Mining Lands Division—an increase of $209,763.83 in comparison with last year's revenue.

Technical Division

Notification (Land Patents).—Since the transfer of the resources, the number of notifications issued during the year under review proved second only to the previous year when the total reached 2,965.

The following comparative statement shows the number of notifications and acreage covered thereby for the fiscal years 1930-31 to 1936-37:

NOTIFICATIONS ISSUED

Fiscal Year	Number of Notifications	Area, Acres
1930-31	23	3,019.71
1931-32	784	111,424.478
1932-33	1,260	178,887.233
1933-34	1,106	165,224.553
1934-35	2,006	324,611.398
1935-36	2,965	433,529.126
1936-37	2,231	325,615.379
Totals	10,375	1,542,311.877
Decreases this year in comparison with last	734	107,913.747

Roadways.—A noticeable increase appeared in the number of plans of surveyed roadways which were filed during the year in this Division. These plans, forwarded by the Department of Public Works, affected 988 parcels of land.

Lands Transferred from the Dominion to the Province.—Much correspondence is still carried on with Ottawa regarding the disposition of certain lands. A list of the areas transferred to provincial control during the year by the Dominion is given in the Technical Division's section of this Report.

New Maps.—A re-issue of the map of Alberta, which was last year described by this Division to be on a scale of seventeen and one-half miles to the inch, was published during the year. The re-issue comprises 1,000 copies in black and blue and 2,000 copies in black and blue showing the provincial highway system in red. A great demand for this highway map has been in evidence.

The map of Alberta, sixteen miles to the inch, to be issued by the Dominion Government, was not received during the year. It is understood that some time yet is to elapse before this publication will be available.

A geological map of Alberta, to be produced by Dr. J. A. Allan, Department of Geology, University of Alberta, in co-operation with this Division, was being designed towards the close of the year. The scale is to be twenty miles to the inch and the map is to be printed in colours. Topography will be shown by brown, contour lines with 400 foot intervals up to 5,000 feet.

Interprovincial Boundary and Northern Boundary of Province.—A request has been made to the Director of Surveys to consult with the Saskatchewan and Dominion authorities in order to complete the survey of the fourth meridian from Lake Athabaska northwards to the northern boundary of the province.

It is deemed advisable at the same time to survey the 60th parallel so that the boundary between Alberta and the Northwest Territories may be established.

Increased Work of Division.—The increased rush of applications resulting from the unusual activity in Turner Valley and other oil-fields during the year created much additional work for the Division. The oil situation demanded a great deal of attention and unavoidably held up other work.

The enlarged demand, both personal and written, for maps, plans, sketches, graphs and legal descriptions, and correspondence in connection with same, taxed the capacity of the entire staff.

Petroleum and Natural Gas

The outstanding feature of the fiscal year under review was the bringing in of the Turner Valley Royalties well, located in n.w. sec. 28, township 18, range 2, west of the 5th meridian, on June 16th, 1936.

The lengthy search for recoveries on a large scale of high grade crude oil from the Madison limestone appeared to be ended by the discovery made by this pioneer well which had been so successfully drilled on the western flank of the structure in southern Turner Valley. The incident without question has opened a new and dramatic chapter in the oil industry of Alberta.

The initial production of the well was at a satisfying potential of 850 barrels a day. This figure eventually settled down to 550 but with acidization it was brought back to its original production rate which with very little deviation has been maintained ever since. The oil registered a gravity of 44.9° Beaumé.

Following this spectacular change in Alberta's oil industry, drilling in this section of the Valley naturally became very active. The next crude oil producers from the limestone were Foundation and Sterling Pacific, No. 3 which came into production in December, B. and B. in February and Westside and Sterling Pacific, No. 4 in March. Each of these five wells was within a mile and a half of the pioneer Turney Valley Royalties well and each one was a satisfactory producer.

In October, 1936, at the annual meeting of the Canadian Institute of Mining and Metallurgy held in Edmonton, J. Grant Spratt, District Engineer, Calgary, and Vernon Taylor, Resident Engineer, Turner Valley, both on the staff of the Petroleum and Natural Gas Division of this Department, presented a paper entitled "Oil Prospects along the West Flank of the Turner Valley Gas Field."

This publication, which surveyed the possibilities of Turner Valley and stressed the potentialities of the field, was well received and widely distributed.

Under the heading of "Future Prospects" and sub-heading of "Potential Reserves" the memoir presents an estimate of reserves based on calculations made.

Two paragraphs in particular under these headings carry sufficient interest to warrant their reproduction. They are as follows:

"A certain amount of gas will be present in the oil area either as free gas or as gas in solution, and as such gas has been found to occupy from 20 to 35 per cent of the reservoir volume in other fields, a 50 per cent shrinkage factor is applied to Turner Valley, which results in a possible average oil reserve of 50,000 barrels per acre.

"The area of potential oil territory is unknown as yet, the eastern limit only being fairly well defined (see map, Figure 1). The north and south boundaries are extended as far as the known gas area. The western boundary is very indefinite and will be limited either by excessive drilling depths or by the possible existence of edge water. From present knowledge, it is assumed that the western boundary can be extended to the 7,000-foot level of the top of the limestone, and, according to known structural conditions, a prospective oil area of 5,000 acres is indicated."

This was the situation at the close of the fiscal year, one which proved to be the forerunner of the spectacular increases in oil production which followed in this newly discovered zone. A situation, incidentally, which has raised the status of Alberta oil to a high level and included it as an important and vital factor in Canadian industry.

Events of dramatic interest to the history of petroleum development will be available for presentation in next year's Report.

ALBERTA OIL PRODUCTION BY FISCAL YEARS

Period	Barrels	Period	Barrels
1914 to close of fiscal year, 1928-29	1,453,404	Fiscal year 1934-35	1,246,958
Fiscal year, 1929-30	1,135,014	1935-36	1,249,596
1930-31	1,614,202	1936-37	1,447,661
1931-32	1,246,328		
1932-33	871,082	Total	11,405,718
1933-34	1,141,473		
Increase this year in comparison with last			198,065 barrels

ALBERTA OIL PRODUCTION BY CALENDAR YEARS

Calendar Year	Barrels	Calendar Year	Barrels
1914 to 1924	96,504	1932	917,622
1925	168,643	1933	1,013,040
1926	219,598	1934	1,265,940
1927	332,133	1935	1,265,750
1928	489,531	1936	1,320,442
1929	999,152		
1930	1,433,844	Total	10,975,394
1931	1,455,195		
Increase this year in comparison with last			56,692 barrels

NATURAL GAS CONSUMPTION

Fiscal Year	Mcf.
1929-30	23,228,637
1930-31	23,312,006
1931-32	18,327,139
1932-33	16,061,383
1933-34	16,346,376
1934-35	16,600,059
1935-36	18,674,944
1936-37	18,727,496
Total	151,278,040
Increase this year in comparison with last	52,552 Mcf.

Forest Service

Fire Season.—With reference to timber losses from forest fires, the fiscal year under review in its relationship to the previous one of 1935-36 proved disastrous in comparison.

It will be remembered that in last year's report the most favourable and encouraging fire season was experienced since the transfer of the natural resources to the province. Total loss for this particular period was only $5,768.00.

This year, however, the exact reverse was experienced. Lack of precipitation, particularly from mid-June to mid-August, provided the most hazardous period for the province which has ever been experienced. Two major fires, originating in the Flat Head and Elk River Valley in British Columbia, spread into Alberta over very wide fronts and were largely responsible for the disastrous total of $1,549,930.30 reported for fire losses during the year. A total which is representative of one of the worst fire seasons the province has ever known. A detailed account of the situation is given in the Forestry section of this Report.

A summary of fire losses within and outside Alberta forest reserves from October 1st, 1930, date of the natural resources transfer to the province, to December 31st, 1936, is given on the next page.

Timber Industry.—Timber operations of all kinds carried out on berths and permits on provincial and school lands together with permits and sales in forest reserves are given in full detail in the Forestry and School Lands' sections of this Report.

An increase of $27,072.22 in revenue derived from these total operations is shown in Statement B of the Accounting Division's report.

Grazing on Forest Reserves.—Forest reserve grazing permits issued show a decrease of 36 in comparison with last year's total.

A decrease is reported also for cattle grazed thereon but increases appear for horses and sheep.

Nursery and Tree Distribution.—Transplanting and seeding was carried on in the fall of 1936 at Oliver and also at the subsidiary nurseries at Ponoka, Fort Saskatchewan and Lethbridge.

A total of 723 applications for seedlings and transplants was approved, 689 coming from individuals, 21 from schools and 13 from institutions. Shipment of trees was carried out from April 22nd to May 22nd.

SUMMARY OF FIRE LOSSES WITHIN ALBERTA FOREST RESERVES

Period	Number of Fires	Cost of Suppression	Area (Acres)	Salvable Timber M.f.b.m.	Salvable Timber (Cords)	Unsalvable Timber M.f.b.m.	Unsalvable Timber (Cords)	Total Loss
October 1, 1930 to March 31, 1931	9	$ 551.67	41,925	.....	.....	2.00	129.00	$ 71.69
April 1, 1931 to December 31, 1931	31	17,624.12	52,218.05	2,370.5	3,086	6,295.73	111,599.00	154,651.47
Calendar Year 1932	32	3,491.04	2,555.75	8	15,863	3,845.00	1,005.60	8,790.73
Calendar Year 1933	39	18,409.92	29,275.88	26.75	1,201	19,188.25	108,414.00	95,796.93
Calendar Year 1934	47	31,118.51	21,963.00	1,510	9,200	2,661.00	209,550.00	96,195.87
Calendar Year 1935	12	94.56	6.50	.....	.....	.....	60.00	45.50
Calendar Year 1936	52	108,894.48	165,465.00	7,573	25	885,192.00	764,594.00	1,504,273.45
TOTALS	222	$180,184.30	271,526.105	11,488.25	29,375	917,183.98	1,195,351.60	$1,859,825.64

SUMMARY OF FIRE LOSSES OUTSIDE ALBERT A FOREST RESERVES

October 1, 1930 to March 31, 1931	47	$ 686.64	11,145.19	155.00	.....	3.75	.....	$ 79,950.85
April 1, 1931 to December 31, 1931	591	82,088.89	552,658.07	134,536.00	104,199.00	122,690.5	684,625.5	712,835.79
Calendar Year 1932	347	15,320.51	133,562.14	274.75	12,215.00	40,627.15	132,743.00	152,085.58
Calendar Year 1933	249	16,971.75	64,489.12	4,383.50	13,953.50	41,694.50	59,545.00	100,008.43
Calendar Year 1934	193	7,050.51	36,907.00	3,404.50	3,159.00	547.50	14,464.00	29,825.77
Calendar Year 1935	85	1,558.90	6,313.25	160.00	1,105.00	1,513.00	5,371.00	5,722.50
Calendar Year 1936	196	13,647.81	38,989.00	2,347.00	23,116.00	659.00	6,017.00	45,656.85
TOTALS	1,708	$137,325.01	844,063.77	145,287.75	157,837.50	207,735.40	902,765.50	$1,126,085.77

SUMMARY OF FIRE LOSSES WITHIN AND OUTSIDE ALBERTA FORREST RRESERVES

October 1, 1930 to March 31, 1931	56	$ 1,238.31	11,187.115	155.00	.....	5.75	129.00	$ 80,022.54
April 1, 1931 to December 31, 1931	622	99,713.01	604,876.12	136,906.5	107,285.00	128,986.23	796,224.5	867,487.26
Calendar Year 1932	379	18,811.55	136,117.89	282.75	28,078.00	44,472.15	133,748.60	160,876.31
Calendar Year 1933	288	35,381.67	93,765.00	4,410.25	15,154.50	60,882.75	167,959.00	195,805.36
Calendar Year 1934	240	38,169.02	58,870.00	4,914.50	12,359.00	3,208.50	224,014.00	126,021.64
Calendar Year 1935	97	1,653.46	6,319.75	160.00	1,195.00	1,513.00	5,431.00	5,768.00
Calendar Year 1936	248	122,542.29	204,454.00	9,947.00	23,141.00	885,851.00	770,611.00	1,549,930.30
TOTALS	1,930	$317,509.31	1,115,589.875	156,776.00	187,212.50	1,124,919.38	2,098,117.10	$2,985,911.41

Coal

The output of coal produced from Alberta mines during the calendar year, 1936, was 5,696,375 tons with a valuation of $14,720,004.06 being an increase of 233,402 tons over the preceding year. Added to this production figure was a total of 2,603 tons mined by farmers under permit for their own use.

The production of coke for the calendar year, 1936 increased by 1,811 tons and of briquettes by 2,203 tons.

Disposition of Coal.—Coal sold for consumption in Alberta totalled 1,356,690 tons; sold for consumption in other Canadian provinces, 2,000,284 tons; sold for consumption in the United States, 27,397 tons; sold to railway companies for locomotive use, 1,969,560 tons; used for making briquettes, 19,472 tons; used for making coke, 97,353 tons; used under colliery boilers, 149,600 tons; used by colliery railways, 6,912 tons; put to stock, 56,290 tons; put to waste, 80,203 tons. The above tonnages include the coal lifted from stock and waste heaps, which is not included in the total output.

COAL PRODUCTION

Calendar Year	Tonnage	Valuation
1930	5,755,911	$19,379,000.00
1931	4,564,290	13,415,745.00
1932	4,870,030	13,441,193.00
1933	4,714,784	12,197,339.00
1934	4,748,848	12,440,616.53
1935	5,462,973	13,946,338.15
1936	5,696,375	14,720,004.06
TOTALS	35,813,211	$99,540,235.74
Increases this year in comparison with last	233,402	$ 773,665.91

PRODUCTION OF COKE AND BRIQUETTES

Calendar Year	Coke (Tons)	Briquettes (Tons)
1930	.....	24,111
1931	.....	15,102
1932	2,183	13,582
1933	49,279	16,104
1934	59,703	15,906
1935	63,428	18,812
1936	65,239	21,015
TOTALS	239,832	124,632
Increases this year in comparison with last	1,811	2,203

Disposition of Electrical Power.—Purchased electrical power used by Alberta coal-mines during the calendar year, 1936 totalled 24,912,243 k.w. hrs.

ELECTRICAL POWER USED FOR OPERATION OF ALBERTA COAL-MINES

Calendar Year	K.w.hrs.
1930	25,003,606
1931	16,918,625
1932	14,875,890
1933	17,611,959
1934	19,447,621
1935	23,111,373
1936	24,912,243
TOTAL	141,881,317
Increase this year in comparison with last	1,800,870

Shale and Clay Mined

During the calendar year, 1936 there were five shale pits in operation. Production from these pits totalled 24,588 tons of shale from which 8,963,384 bricks were manufactured.

SHALE MINED—BRICKS AND TILES MANUFACTURED

Calendar Year	Shale Mined (Tons)	Bricks Manufactured (Number)	Tiles Manufactured (Tons)
1930	67,517	22,007,045	.....
1931	23,855	7,091,080	2,825
1932	8,446	3,444,010	182
1933	3,234	1,221,060	.....
1934	13,561	4,398,032	1,171
1935	20,258	7,349,300	.....
1936	24,588	8,963,384	.....
TOTALS	161,459	54,473,911	4,178
Increases this year in comparison with last	4,330	1,614,084	.....

Mines Branch Annual Report.—Statistical information covering Alberta's coal-mining activities and production of shale and clay mined for the calendar year 1936 is given in complete detail in the published Annual Report of the Mines Branch, Department of Lands and Mines, for this period which appears as a separate publication to this Report.

Staff

Before concluding I would like to offer to the staff of this Department an expression of appreciation in return for loyal and intensive application to the various duties for which each member has been responsible.

I would like this expression to cover not only the period under review but also the greater period which dates from the creation of this Department up to now.

Individual detailed reports from the various Divisions of the Department follow.

Your obedient servant,

J. Harvie,
Deputy Minister.

Edmonton, September 13th, 1937.

Provincial Lands Administration

REPORT OF THE DIRECTOR OF LANDS, D. H. BOLES

Provincial Land Agencies and Sub-agencies.—The land agencies at Calgary, Lethbridge and Peace River, together with seven all-time sub-agencies, continued as heretofore with the transmission of applications to the Administration Office in Edmonton and in maintaining service of a general nature to the public. Sub-agencies during the period of this Report totalled eight in number and were open for business one day each month. Members of the staff of this Division acting as sub-agents on these days, were in attendance at the different locations in which they were situated.

The following applications were received throughout the province during the year:

Cancellation of homestead entries	1,598	Miscellaneous leases	2
Cultivation leases	29	Accrued area leases	69
Grazing leases	71	Fur farming leases	7
Patents	2,262	To lease surface rights	4
Church sites and cemetery sites	19	Licenses of occupation	8
School sites	38	Miscellaneous grants	36
To purchase provincial lands	117	Release of habendum clause	1
Townsites	2		

Homestead Entries.—Homestead entries for the year reached a total of 1,432, which included 7 soldier grants. Applications for patent on hand at April 1st, 1936, added to those received during this fiscal year, totalled 4,368. Other business transacted was as follows:

Leases issued:			
Accrued area	87	Surface rights	3
Cultivation	51	Townsites	1
Fur farming	1	Miscellaneous	14
Grazing	255	Licenses of Occupation	7

Land Sales Granted.—Sales of provincial lands granted during the year totalled 132.

Permits Issued.—Grazing permits issued totalled 909 and hay 729.

Accrued Area Leases.—As stated in the previous Report, accrued area leases are being issued to the holders of beneficial rights in adjoining lands. The main object in the granting of such leases is to assist in the destruction of noxious weeds. The following statement shows leases issued and cancellations during the year:

	Leases	Acres
In force, March 31st, 1936	192	21,830
Issued during the fiscal year	87	2,815.72
	279	24,645.72
Cancelled during the fiscal year	34	2,126
In force, March 31st, 1937	245	22,519.72

Cultivation Leases.—The issue of cultivation leases is made on the basis of delivery to the Department of a share of the crop grown on the area leased. The proportion of the Department's share is variable and is dependent on the location of the land, the amount to be determined on a survey made for that purpose.

Due to climatic conditions returns have not been as substantial as anticipated and in order to assist lessees the reduction in the Department's share of the crop referred to in last year's Report was extended to cover this fiscal year.

Cultivation Leases:	Leases	Acres
In force, March 31st, 1936	249	43,496
Issued during the fiscal year	51	8,116
	300	51,612
Cancelled during the fiscal year	12	2,064
In force, March 31st, 1937	288	49,548

Cancellations:

Homestead entries	1,751
Grazing leases	703
Provincial land sales	163
Miscellaneous leases	7

Notifications Issued.—An itemized statement of notifications issued and acreage covered thereby is given in the Technical Division's section of this Report.

Office Transactions:

Total letters received	120,175	Number of stencils cut	288
Daily average received	395.26	Number of pages mimeographed	117,464.
Total letters mailed	154,286	Number of translations made for this	
Daily average mailed	522.20	and other Departments	517
Assignments recorded	89	New files made	8,499

Land Inspections:

Outstanding April 1st, 1936	1,148
Reports called for during the fiscal year	1,300
	2,448
Reports received during the fiscal year	1,758
Outstanding, March 31st, 1937	690

Grazing

Grazing Inspections:

Outstanding April 1st, 1936	605
Reports called for during the fiscal year	140
	745
Reports received during the fiscal year	354
Outstanding, March 31st, 1937	391

RANCH GRAZING LEASES

Fiscal Year April 1, 1936 to March 31, 1937

	No. of Ranches		Acreage under Lease
DOMINION:			
Leases and area at March 31st, 1936	2,374		2,403,639.00
Area withdrawn on request, roadways, etc.		18,881.14	18,881.14
			2,384,757.86
Area added by application		4,088.71	
Area added by amalgamation		11,642.25	15,730.96
			2,400,488.82
Cancellations:			
Straight	144	50,054.28	
Renewed under provincial regulations	67	18,630.38	
Amalgamated under provincial regulations	366	290,362.21	
Amalgamated under dominion regulations	7	11,642.25	
	584		370,689.12
As at March 31st, 1937	1,790		2,029,799.70

	No. of Ranches		Acreage under Lease	
PROVINCIAL:				
Leases and area as at March 31st, 1936		856		678,021.00
Area withdrawn on request			2,277.70	2,277.70
				675,743.30
Area added by applications (35)			33,498.80	33,498.80
				709,242.10
Cancellations:				
Straight	42		13,129.74	
Amalgamations	77		59,076.02	
		119		72,205.76
		737		637,036.34
New Leases:				
Applications (93)	93		52,829.05	
Assignment	1		7,089.32	
Renewal (47 dom.)	17		18,485.40	
Amalgamation, renewal and application (386 dom. 77 prov. 15 app.)	144		406,886.58	
		255		485,290.35
As at March 31st, 1937		992		1,122,326.69

Provincial Grazing Reserve.—Lands in township 1, range 19, west of the 4th meridian have been continued as a reserve for community grazing with a caretaker in charge. Both grazing and water supply are amply sufficient to meet the requirements of the stock which is limited to 500 head. It has been found that by carefully controlled public grazing the grass on this reserve is gradually returning to normal.

Due to drought conditions and lack of feed in the south a limited number of stock was permitted to graze on this reserve during the winters of 1936 and 1937.

The adverse climatic conditions existing during recent years have been taken into consideration by the Department and it has been suggested that it would be advantageous to grazing lessees if consolidation was made of the accounts for taxes and rental.

The necessary authority having been granted, and commencing January 1st, 1937, all taxes as well as rentals were payable to this Department. The accounts are being adjusted to December 31st, 1936, and on January 1st, 1937, the annual rental and taxes of a like amount became payable. Authorization has also been granted whereby the arrears of rentals and taxes may be consolidated and payments spread over a term of years.

It is the intention, on receipt of the required information from the municipal authorities and on adjustments of the accounts, to furnish each lessee with a statement showing the standing of the account in connection with each lease.

Coutts Quarantine Reserve.—Negotiations have been completed and 9,600 acres in the Coutts Quarantine Reserve in townships 1 and 2, ranges 15 and 16, west of the 4th meridian have been transferred by the federal authorities to the Province of Alberta for administration purposes. A survey will be made in order to determine the disposition which should be made of these lands.

Provincial Parks.—The Department is continuing to set aside all lands found suitable for parks or recreational purposes, thereby increasing the areas turned over to the control of the Provincial Parks Board.

School Lands Administration

REPORT OF THE SUPERINTENDENT OF SCHOOL LANDS, J. W. STAFFORD

Report for the fiscal year ending March 31st, 1937, in connection with the administration of school lands, is submitted herewith.

In the previous Report attention was called to the amendment to The Provincial Lands Act, which gave the Minister the power to give effect to any compromise, adjustment or arrangement made pursuant to The Farmers' Creditors Arrangement Act, 1934, in respect to any agreement for the sale of school lands or to any sum payable under any such agreement on account of principal and interest or either of them.

No results were obtained in connection with this amendment owing to the fact that the federal government has apparently not yet seen fit to grant the Board of Review under the Farmers' Creditors Arrangement Act authority to make compromises in connection with school lands' sales.

A gratifying increase is shown in the revenue for this year as compared with the fiscal year ending March 31st, 1936.

The total net revenue for the present year is $349,563.37, as compared with $254,142.49 during the previous year. Of this revenue the sum of $55,799.89 was paid on account of principal on school lands' sales and the balance $293,763.48 comprises miscellaneous moneys such as interest, timber dues, grazing and other rentals, etc.

This increased revenue is chiefly attributable to the fact that grain prices were considerably higher this year than last with the result that the grain received by the Department on crop share leases netted a larger revenue and in many cases purchasers of school lands were in a position to make substantially larger payments than in the previous year.

No general auction sales were held during the fiscal year under review, but in numerous cases requests were made by settlers to offer for sale certain individual quarter sections in order that they might extend their operations. The Department saw fit to grant these various requests with the result that 36 parcels of land, comprising a total area of 5,591,305 acres, were offered for sale realizing a sale value of $55,261.05, being an average of $9.88 per acre. The highest price received for any parcel was at the rate of $18.75 per acre and the lowest price realized was $6.00 per acre.

During this year 162 grazing and cultivation leases were issued comprising a total area of 29,750,015 acres and in the same period 26 leases comprising an area of 5,317.85 acres were cancelled.

In connection with timbering operations, 19 timber berths were disposed of by sale and from these berths, together with other berths previously disposed of, there was manufactured the following material: 4,340,432 Fbm. of lumber; 11,840 railway ties; 182 cords of wood and 15,000 shingles.

A total of 532 timber permits was issued under authority of which the following material was cut: 5,668 lineal feet logs; 998,986 Fbm. of lumber; 700 fence posts; 270 fence rails; 2,740 cords of wood; 13,235 railway ties; 494 telephone poles; 98,350 lath and 1,000 shingles.

Timber seizures numbered 24, covering the following material: 710,500 Fbm. of lumber; 896 lineal feet logs; 94 cords wood; 947 railway ties; 200 telephone poles; 700 fence posts; 56,000 lath.

In connection with hay, 357 permits were issued authorizing the cutting of a total of 4,366 tons of hay and under authority of which 3,535¼ tons were cut.

Two hay seizures were made covering a total quantity of 42 tons.

In addition to maintaining a complete set of land records and a complete filing system in this Division, the following further transactions were completed in connection with the administration of school lands: Assignments registered, 87; cultivation and grazing leases issued, 162; cultivation and grazing leases cancelled, 26; grazing permits issued, 2,217; hay permits issued, 357; timber permits issued, 532; timber seizures, 24; hay seizures, 2. Letters dispatched totalled 35,839.

Mining Lands Administration

REPORT OF THE SUPERINTENDENT OF MINING LANDS, J. W. HAMILTON

The Mining Lands Division as stated in last year's Report is charged with the administration of regulations governing the disposal of mineral rights, solid, liquid and gaseous, which are the property of the crown in provincial and school lands. Additional duties of the Division include those of Mining Recorder for the Edmonton District.

As previously intimated, all mining lands' leases, petroleum and natural gas prospecting permits and special permits are prepared and issued by the Division. Applications are received at this office and at the offices of the different provincial land agencies, the latter forwarding same to this Division for approval and further action. In connection with this work complete sets of township plans and registers are kept up to date.

The following is a list of leases dealt with from October 1st, 1930, date of the transfer of the natural resources to the Province of Alberta, to March 31st, 1937:

Type of Lease	Active at date of transfer	Issued	Divided	Cancelled	Renewed	Active at March 31st, 1937
Petroleum and natural gas, provincial lands	16,899	4,307	80	16,012	91	5,183
Petroleum and natural gas, school lands	1,964	489	1	1,976	1	477
Petroleum and natural gas, crown reserve	5	20	.....	11	.....	14
Coal, provincial lands	620	273	2	401	86	408
Coal, school lands	60	20	.....	41	5	34
Quarrying	45	19	.....	27	.....	37
Quartz mining	4	.....	.....	.....	.....	4
Salt and gypsum	1	1	.....	1	.....	1
Bituminous sands	4	.....	.....	2	.....	2
Miscellaneous	1	2	.....	.....	.....	3
Dredging	32	4	.....	28	.....	8
TOTALS	19,635	5,135	83	18,499	183	6,171

ACREAGE CONTAINED IN ABOVE LEASES

Type of Lease	Active at date of transfer	Issued	Cancelled	Renewed	Active at March 31st, 1937
Petroleum and natural gas, provincial lands	2,263,076	603,241	2,141,665	13,107	711,545
Petroleum and natural gas, school lands	191,726	57,081	198,707	420	49,680
Petroleum and natural gas, crown reserve	6,160	22,561	13,441	.....	15,280
Coal, provincial lands	236,984	102,205	156,633	69,437	113,119
Coal, school lands	9,570	1,642	4,901	826	5,485
Quarrying	1,675	368	606	.....	1,437
Quartz mining	182	.....	.....	.....	182
Salt and gypsum	200	6,721	200	.....	6,721
Bituminous sands	3,952	.....	2,040	.....	1,912
Miscellaneous	3,560	313	.....	.....	3,873
TOTALS	2,717,085	794,132	2,518,193	83,790	909,234
Dredging (in miles)	145	12	125	.....	32

Statement of Business Transacted, 1936-37

PETROLEUM AND NATURAL GAS

	Number	Acres
Petroleum and natural gas leases issued on provincial lands	2,482	238,581.34
Petroleum and natural gas leases issued on school lands	275	22,437.25
Petroleum and natural gas leases issued under crown reserve regulations	1	160
Petroleum and satural gas leases cancelled and relinquished on provincial lands	471	124,942.74
Petroleum and natural gas leases cancelled and relinquished on school lands	69	14,821.01
Petroleum and natural gas leases cancelled under crown reserve regulations	5	7,840
Permits to prospect issued	41	483,171.31
Permits to prospect cancelled	53	141,531.86
Assignments registered	338	
Fees, rentals and bonus collected	$437,331.49	
Royalties collected	108,935.28	
TOTAL	$546,266.77	

COAL

	Number	Acres
Coal leases issued on provincial lands	25	1,692.25
Coal leases issued on school lands	.....	.....
Coal leases cancelled and relinquished on provincial lands	12	1,309.33
Coal leases cancelled and relinquished on school lands	2	320
Fees and rentals collected	$121,351.61	
Royalties collected	193,810.33	
TOTAL	$315,161.94	

MISCELLANEOUS

Permits to collect bitumen	1

STATEMENT OF BUSINESS TRANSACTED WITHIN THE EDMONTON DISTRICT 1936-37

	Number	Acres
Applications for petroleum and natural gas leases	148	15,870
Applications for petroleum and natural gas permits to prospect	16	251,475
Applications for coal-mining leases	15	728
Applications for salt leases	1	6,721
Applications for bituminous sand leases	1	336
Domestic coal permits issued	15	.....
Quartz mining claims granted	3	.....
Quartz mining certificates of work issued	7	.....
Quartz mining certificates of partnership issued	1	.....
Powers of Attorney (quartz) registered	5	.....
Placer claims granted	2	.....
Powers of Attorney (placer) registered	1	.....
Bar-digging permits issued	1	.....
Sand, stone and gravel permits issued	4	.....

Petroleum and Natural Gas

Development of Leases.—Expenditures incurred in actual development of an area acquired under lease may under the petroleum and natural gas regulations be accepted in satisfaction of rentals, which should otherwise be paid in cash. Under this provision, rentals due to the amount of $386,702.91 were satisfied by such expenditures, and so reduced the revenue of the Division to that extent. The total rental revenue in cash together with expenditures accepted in lieu of rental of petroleum and natural gas rights amounted to $900,643.52 for the year.

Disposal by Public Tender.—The disposal by public tender of petroleum and natural gas rights in areas comprising cancelled leases is provided for in the regulations and this method of disposal has resulted in payment to the Department of the sum of $76,360.56 as bonus during the year, of which $49,302.60 was on school lands and $27,057.96 on provincial lands.

Number and Area of Leases.—On the transfer of the natural resources, October 1st, 1930, 18,868 leases were transferred to provincial administration comprising 2,460,962.48 acres. Since that date 4,816 leases comprising 672,883.55 acres have been issued by the Alberta Government. During the year under

review 2,858 leases were issued, covering 261,178.59 acres. There are now in force a total of 5,674 leases embracing an area of 776,505.5 acres.

Prospecting Permits.—Prospecting permits are issued for periods of six and twelve months and after the prospecting work required to be done is completed to the satisfaction of the Department the permittee is privileged to apply for leases covering the area under permit or to relinquish the area entirely. Under these regulations there are now active 38 prospecting permits covering an area of 585,882.78 acres.

Crown Reserves.—By Order in Council, No. 225/37, dated March 3rd, 1937, regulations were issued for the establishing of crown reserves in all crown lands in unsurveyed territory and lands comprising Alberta forest reserves. In these areas a locator has to stake twice the area he desires to lease, the said area being divided into equal parts of equal value from surface indications, for the discovery of oil. He may apply for a lease of one half of the area and the other half shall be reserved to the crown.

Also all the odd numbered sections of land situated north of the north boundary of township 52 are reserved and constitute crown reserves.

A ministerial order was issued on December 5th, 1936 extending as follows the area of the land in Turner Valley within which oil or natural gas in remunerative quantities has been discovered:

Township 18, *Range* 2, *West* 5th *Meridian*:
Sections 16, 17, 20, 21; the west half of 22; sections 27, 28, 29, 32, 33 and 34.
Township 19, *Range* 2, *West* 5th *Meridian*:
Sections 3, 4, 5, 6, 7, 8, 9, 16, 17, 18, 19, 20, 21, 29, 30, 31 and 32.
Township 19, *Range* 3, *West* 5th *Meridian*:
The north-east quarter of section 13, sections 24 and 25; the north-east quarter of section 35; Section 36.
Township 20, *Range* 2, *West* 5th *Meridian*:
Sections 6, 7 and 18.
Township 20, *Range* 3, *West* 5th *Meridian*:
Sections 1 and 2; the north half of section 10; sections 11, 12, 13, 14 and 15; the east half of section 16; the east half of section 21; sections 22, 23, 24, 25, 26 and 27; the east half of section 28; sections 33, 34 and 35.
Township 21, *Range* 3, *West* 5th *Meridian*:
Sections 2, 3 and 4.

Coal

The disposal of coal rights is made on the basis of terminable leases which call for an annual rental of $1.00 per acre and subject to a royalty of 5c per short ton on production.

Leases Issued.—During the year the following coal-mining leases were issued:

	Number	Acres
Provincial lands	25	1,692.25
School lands	....	.....
	25	1,692.25

Coal-mining leases in force at the end of the fiscal year totalled 442, comprising 118,604.25 acres. During the year 3,360,183 tons of coal, subject to royalty, were mined, as compared with 3,867,139 tons of royalty-bearing coal mined in the previous fiscal year.

Coal for Domestic Use.—The total number of permits to mine coal for domestic purposes was 58 for the year. A fee of $1.00 is charged for a permit of this nature with royalties based at 10c per ton. Permits of this nature terminate on the 31st of March in each year and are limited to a maximum area of one acre. The amount of coal extracted under these permits for the year was 2,045.5 tons.

Requirements for New Leases.—Inspections and reports are made on the locations of coal-mining leases as shown on all applications. New leases are

granted only if required for the continuation of existing operations or in the few instances where the locality in which the area applied for is so situated that it cannot be supplied economically from an existing mine.

Crown royalties which have been collected on coal mined from lands in the Province of Alberta during the past 29 years are given in the following statement:

Fiscal Year	Royalty Paid	Fiscal Year	Royalty Paid
1907-1908	$ 7,621.67	1924-1925	148,979.10
1908-1909	5,322.39	1925-1926	188,277.94
1909-1910	153,559.98	1926-1927	218,150.10
1910-1911	218,932.88	1927-1928	231,757.96
1911-1912	104,894.55	1928-1929	254,616.27
1912-1913	142,997.79	1929-1930	248,083.71
1913-1914	147,198.75	1930-1931	105,126.51
1914-1915	104,489.77	1931-1932	145,170.33
1915-1916	67,190.17	1932-1933	143,800.01
1916-1917	149,447.82	1933-1934	193,527.82
1917-1918	144,634.75	1934-1935	176,122.43
1918-1919	175,687.66	1935-1936	186,691.23
1919-1920	181,641.80	1936-1937	193,810.33
1920-1921	190,545.80		
1921-1922	185,436.88	Total	$4,725,539.76
1922-1923	171,723.83		
1923-1924	210,389.53		

Bituminous Sands

Under the bituminous sand regulations applications for a location can only be considered if the applicant has submitted satisfactory evidence which may establish his right to the use of a process whereby oil or other hydrocarbons may be recovered from the sands, such process in the opinion of the Minister giving promise of developing a successful industry. The applicant, on compliance with this stipulation, may be granted a permit to proceed with development. After the process of extraction has been proven and established, a terminable lease may be granted.

At the close of the year one permit, comprising 9,718 acres and 2 leases, covering 1,912 acres, were in force.

An area comprising some 15,000 square miles has been reserved in the McMurray district for the purpose of bituminous sand development. This area is considered to be one of the greatest richness and the overburden comparatively light.

Quartz Mining

The granting of quartz mining claims is subject to an annual expenditure for development work. With the establishment of satisfactory progress and the proper survey of the claim a lease is issued for a period of twenty-one years, the products recovered being subject to payment for royalty. The recording of 3 quartz mining claims was made during the year. There are at present in force 4 quartz mining leases comprising an area of 181.8 acres.

Quarrying

Quarrying leases on crown lands are issued under the regulations for limestone, granite, slate, marble, gypsum, marl, gravel, sand, clay, volcanic ash or any building stone. At the close of the year a total of 37 such leases were active, which covered an area of 1,437.69 acres.

Dredging

The 8 leases to dredge for minerals in the beds of rivers, reported last year, were active during this period. These leases, as previously stated, comprise portions of the beds of the Macleod and Athabaska rivers and cover a total river stretch of 32 miles.

Sodium Chloride (Common Salt)

A permit to prospect for sodium chloride was issued last year and the permittee having fulfilled all the requirements was issued a lease this year. A lease comprising 6,720.82 acres was issued for a period of twenty-one years.

Miscellaneous Leases

During the year two special leases were issued for the removal and disposal of sodium sulphate (glauber salts) which occurs in a comparatively pure condition and in the form of a natural accumulation in certain sloughs and shallow lakes. Both leases were issued for a period of five years and comprise a total of 32.56 acres.

Special Permits

One special permit was in force during this period for the collecting of bitumen issuing from two northern wells. These rights were disposed of by public tender to the bidder offering the highest royalty.

Many requests for information on the province's natural resources were received during the year by this Division. Considerable investigation was frequently necessary in individual cases, a number of the enquiries being of a nature which could not be adequately replied to by the sending of printed reports.

Technical Division

REPORT OF THE SUPERINTENDENT OF THE TECHNICAL DIVISION, T. W. DALKIN

Notifications (*Land Patents*).—The number of notifications issued during the period under review was the second highest since the transfer of the natural resources, 1935-36 being the peak year. During 1936-37, 325,615.379 acres and 127½ subdivision lots, located in government townsites and in townsites where lots were transferred to the jurisdiction of this Department from the Department of Municipal Affairs on account of tax recovery proceedings, were patented.

Hereunder is set out in detail the nature of the grants and the numbers and areas of same:

Nature of Grant	Notifications	Area (Acres)
Homesteads	1,318	207,170.264
Second homesteads	546	84,970.01
Soldier grants	81	12,377.18
School lands sales	40	2,426.23
Sales (including lots in subdivisions)	129	2,327.95
Special grants	94	13,154.965
School land grants	7	1,845.50
Pre-emptions	3	475.28
Exchange of lands	4	780.50
Canadian Pacific Railway	2	65.13
Lacombe & Northwestern Railway	1	5.26
Northern Alberta Railways	5	11.73
Canadian Northern Western Railway	1	5.38
TOTALS	2,231	325,615.379

Details of Sales in Subdivisions	Notifications	No. of Lots	No. of Blocks
Canmore	32	33	....
Taber (3876 R)	1	1	....
Johnson's Addition to Taber (3876 R)	1	1	....
Walsh (3644 B)	1	1	....
Coleman (6808 CU)	7	9	....
Peace River Landing Settlement (7361 AH)	4	25	....
Peace River Landing Settlement (5617 BK)	1	3	....
Maple Leaf ((7242 AI)	18	32	....
Maple Leaf (7242 AI)	1	....	1
Maple Leaf (4480 Y)	1	2	....
Maple Leaf (6224 Y)	4	5	....
McMurray Settlement	1	1	....
Bellevue (7134 AI)	2	4	....
Hillcrest (5150 S)	1	½	....
Jarvie	2	3	....
Crowfoot (4811 N)	1	1	....
Patricia (1217 BA)	1	1	....
Carcajou Settlement	1	1	....
Seven Persons (610 W)	1	2	....
Rosemary (988 BA)	1	2	....
TOTALS		127½	1

The four grants of land to the Northern Alberta Railways Company were necessitated on account of dangerous slides in the vicinity of the Smoky River and for bridge protection work in and around townships 78 in ranges 23 and 24, and townships 77 in range 24, west of the 5th meridian. The other grant was for an additional area for station grounds in the south-west quarter of section 1, township 74, range 8, west of the 5th meridian.

The notification issued to the Canadian Northern Western Railway Company was for ditching purposes.

The two grants set out in the schedule in favour of the Canadian Pacific Railway Company cover the main line of that company west of Calgary, in township

24, range 8, and township 25, range 10, west of the 5th meridian. Considerable correspondence passed between this office, the Dominion Government and the Canadian Pacific Railway Company and it was ascertained that grants were not issued for these areas by the Dominion Government on account of the fact that the only plan of the railway in existence showed the same passing through unsurveyed lands. As the lands affected have been subdivided for some considerable time, it was found necessary to prepare a new plan of survey which has been duly recorded in this Division and now forms the basis for the notifications in favour of the railway company.

The notification in favour of the Lacombe and Northwestern Railway Company was for right of way purposes only.

Homestead Entries.—During the year 1,295 homestead entries, 129 second homestead entries and 7 soldier grants were checked in as far as the areas were concerned. Where railway rights of way, roadways, power transmission lines, pipe-lines and other previously alienated lands affected these homesteads, reservations were noted accordingly, and the entries granted subject to these reservations. Many applications were received from homesteaders to obtain entry to lands on both sides of the rivers, claiming that such rivers could be considered fordable in as far as farming operations were concerned.

Revested Soldier Settlement Board Lands.—It was ascertained that several quarter sections, which were transferred by the Soldier Settlement Board to this Department owing to the loans against them being withdrawn, were located in municipal districts. Representations were made by the Department of Municipal Affairs on behalf of these districts with the result that notifications were issued for these parcels of land in favour of the municipal districts in which they were situated.

Roadways.—There was a decided increase in the number of plans of surveyed roadways filed in this Division. These plans were forwarded through the Department of Public Works in order that reservations could be made for the land required for roadway purposes. In all, 988 parcels of land were affected. Some of these surveys crossed over lands alienated by sales, etc. and in such cases quit claims were obtained and compensation exacted. In other cases it was found necessary to abandon old surveys in order to permit of the filing of plans of the new roadways. The legal descriptions in leases and other instruments were also amended where new roadways affected same.

Licenses of Occupation.—Favourable consideration was given to an application from the Abasand Oils, Limited for a roadway affecting certain crown lands in the McMurray Settlement with the result that a license of occupation was issued in favour of that company in order to facilitate the development of the bituminous sands.

The Canadian Pacific Railway Company was granted a license of occupation for a railway bridge site comprising a portion of the bed of the Red Deer River in the south-west quarter of section 28, township 27, range 18, west of the 4th meridian.

For some time licenses of occupation have been granted to certain applicants carrying on commercial operations on the shores of Sylvan Lake. These licenses, however, are now issued for one year only on account of the fact that a definite application has been received on behalf of the Dominion Government from the Department of Public Works at Winnipeg. A provisional reservation has been entered in the records affecting the crown lands at Sylvan Lake pending the receipt of a plan of survey definitely showing the area required for this breakwater.

Licenses of occupation have been issued in favour of the Department of Public Works of the Dominion Government for wharf sites located in the Slave River opposite river lot 17, Fitzgerald Settlement, in the bed of Lake Wabamun at Seba Beach and in the bed of South Cooking Lake at a location known as Wellington Beach. The wharfs have already been constructed at these locations and plans of survey have been recorded in this Division.

Middle Creek Reservoir.—At the present time correspondence is in progress with the Department of Agriculture of the Dominion Government at Regina in response to an application for a license of occupation under the Prairie Farm Rehabilitation Act. This license will affect 365 acres, more or less, near the Saskatchewan boundary in township 5, range 1, west of the 4th meridian, and is the outcome of the drought conditions which have been experienced in the south for the past number of years. This project is known as the Middle Creek Reservoir.

Change in Boundary between Elk Island Park and Cooking Lake Forest Reserve.—In last year's report reference was made to the change in the south boundary of Elk Island Park and the north boundary of Cooking Lake Forest Reserve, due to a revised survey of the provincial highway, the new provincial highway now forming the boundary between these two areas. After the exchange of much correspondence between this Department and the Commissioner of National Parks of the Department of the Interior an Order in Council No. 933/36 was issued on the 30th of June, 1936, which authorized the transfer of certain provincial lands in the Cooking Lake Forest Reserve in township 53, range 20, west of the 4th meridian, containing 148.77 acres, more or less. In return for these areas the authorities at Ottawa have agreed to submit a bill to the dominion parliament to withdraw from Elk Island Park certain areas lying south of the highway and transfer the same to the province.

Change in Boundary of Banff National Park.—In certain correspondence taking place between this Division and the Deputy Minister of the Department of Mines and Resources it has been agreed to amend the boundary of the Banff National Park at the Spray River. This adjustment has been found necessary as a result of the surveyor in making the survey on the ground following the description as set out in The National Parks Act. Apparently this description did not follow the conditions on the ground, and the surveyor, under the circumstances, deemed it advisable to follow the main topographical features. As soon as a plan of survey of the revised boundary is received, an order in council will be submitted for approval of this small area.

Proposed Indian Reserves.—Representations have been made to this Department by the Deputy Superintendent-General of the Department of Indian Affairs in order to acquire an area comprising 52,398.20 acres, more or less. This area comprises several parcels of land in the north near the Chipewyan Settlement which can be classified as marsh lands. It is desirous from the information received that these marsh lands be used as trapping and hunting grounds for the Chipewyan Indians.

Lands Transferred from the Dominion to the Province.—There is still considerable correspondence carried on with Ottawa in connection with the disposition of certain lands. During the past year the following areas were transferred from the Dominion to provincial control.

(1) Privy Council Order, No. 950, dated April 20th, 1936, transferred what was known as the Coutts Quarantine reserve to the province. This reservation comprises the following lands:

In Township 1, *Range* 15, *West* 4th *Meridian*:
Rectangular parcel in south-west corner of n.w. ¼ sec. 4, measuring 1,800 feet east and west and 1,205 feet north and south, excepting railway right of way.
Part n.½ sec. 5, east of railway right of way.
Pts. n.½ and s.e.¼ sec. 7, east of railway right of way.
All of section 17.
N.½ and s.e.¼ sec. 18 and pt. s.w.¼ 18, east of railway right of way.
All sections 19, 20, 30, 31, 32 and 33.

In Township 2, *Range* 15, *West* 4th *Meridian*:
N.W.¼ and s.½ sec. 4 and pt. n.e.¼ sec. 4 south of Milk River.
S.½ sec. 5 and pt. n.½ sec. 5 south of Milk River.
S.½ sec. 6 and pt. n.½ sec. 6 south of Milk River.
Pt. s.½ sec. 7 south of Milk River.
Pt. s.½ sec. 8 south of Milk River.
Pts. n.w.¼ and s.½ sec. 9 south of Milk River.

In Township 1, *Range* 16, *West* 4th *Meridian*:
Pts. n.w.¼ and e.½ sec. 1¾ east of railway right of way.
E.½ sec. 24 and pt. w.½ sec. 24 east of railway right of way.
E.½ sec. 25 and pt. w.½ sec. 25 east of railway right of way.
Pt. e.½ sec. 35 east of railway right of way.
N.½ and s.e.¼ sec. 36 and pt. s.w.¼ sec. 36 east of railway right of way.

(2) By Privy Council, Order No. 1847, dated July 23rd, 1936, the province gained control of lots 1, 2, 3, 4, 17, 18, 19 and 20, block 71, and lot 20, block 49, Canmore.

(3) Privy Council, Order No. 1112, dated May 11th, 1936, transferred section 17, township 15, range 4, west of the 4th meridian, formerly used for dipping vat purposes, to the province.

(4) Part east half and legal subdivisions 3 and 6 of section 2, township 14, range 1, west of the 5th meridian were formerly used for dipping vat purposes and were transferred to the province by Privy Council, Order No. 1115, dated May 11th, 1936.

Flood at McMurray.—Upon representation being made to the Department on behalf of the residents at McMurray, a government official carried out an inspection of the situation in May. It was found with the breaking up of the ice on the Athabaska and Clearwater rivers, that the flood waters from the Athabaska backed up the Clearwater River causing much damage and distress to residents of a location known as the "Prairie". As a precautionary measure in the event of future spring floods, it was decided to lease to these residents government lands on a location above the flood level. Most of the inhabitants of this area participated in this arrangement which seemed a satisfactory solution to all concerned.

Mountain Slide at Frank.—Continuing the policy of acquiring lands declared unsafe for residential purposes, lots 1 to 4, block 9, Bellevue, Plan 4590 A.L., were transferred to this Department by the Department of Public Works. In this way the disposition of the lots is controlled and building operations prevented in view of the danger of new slides.

Map of Alberta, Scale 17½ *miles to the Inch.*—A re-issue of the map of Alberta, scale 17½ miles to the inch designed by this Division was published comprising 1,000 copies in black and blue and 2,000 copies in black and blue showing in red the provincial highway system. There has been a great demand for this highway map.

Map of Alberta, Scale 16 *miles to the Inch.*—Sometime ago this Division was advised that it was the intention of the Dominion Government to issue a map of the Province of Alberta, scale 16 miles to the inch, similar to the maps that have been issued covering the provinces to the east. The latest enquiry regarding this Dominion map reveals, however, that it will be some time before it will be available.

Geological Map of Alberta.—At the present time this Division is working in co-operation with Dr. J. A. Allan, Dept. of Geology, University of Alberta, in

connection with a new geological map. There have been many enquiries for an up to date map of this nature from various parties on the continent due to the increased activity and interest in the resources of the province. The map will be drawn upon a scale of 20 miles to the inch and will be printed in colours. The topography is to be shown by brown contour lines with 400 foot intervals up to 5,000 feet.

New Surveys.—Preliminary prints of the new surveys of the west half of township 69, range 6, portions of township 70, range 6, township 76, range 12, and township 76, range 13, all west of the 6th meridian, were received from the Director of Surveys together with the statutory declarations of the squatters upon these lands.

It was ascertained upon examination of a plan of survey of a road diversion that the monuments upon the ground did not agree with the latest plan of survey of township 80, range 3, west of the 6th meridian, in and around sections 5 and 8 adjoining Indian Reserve, No. 152 A. A request is being made for a reservation of this area.

Squatters at McLennan.—A preliminary plan of subdivision of the lands occupied by the squatters on the north-east quarter of section 29, township 77, range 19, west of the 5th meridian at McLennan, referred to in last year's Report, has now been received. This subdivision consists of 4 blocks comprising 97 lots. It is intended, when final plans of survey have been received, to dispose of these lots by auction to the occupants of the land.

Upon the examination of a plan of survey of a roadway through sections 16 and 21, in township 70, range 10, west of the 6th meridian, it was revealed that the course of the Red Willow River on the ground differs greatly from the location of the river as shown upon the official plan of survey of the township. A request is therefore being made for a survey for a new plan of this area.

Caldwell Townsite.—Due to representations which indicated the loss suffered by miners through floods in the Willow Creek area, the Department as a measure of relief undertook to bear the expense of a survey of a new townsite known as Caldwell, located on part of the south-west quarter of section 7, township 28, range 18, west of the 4th meridian. In undertaking to bear this expense it was understood that the owner of the land was to provide each miner with a lot in the subdivision free of charge.

Interprovincial Boundary and Northern Boundary of Province.—Owing to the mining activity along the north shore of Lake Athabaska adjoining the Alberta-Saskatchewan provincial boundary consideration has been given to the necessity of completing the survey of the fourth meridian northwards to the northern boundary of the province. A request has been made to the Director of Surveys to consult with the Saskatchewan and Dominion authorities in order to complete the survey of this meridian.

At the same time it has also been deemed advisable to survey the 60th parallel so that the boundary between Alberta and the Northwest Territories may be established. The 60th parallel is an astronomical line controlled by sets of observations taken at intervals along the boundary. These observations must be computed before the line can be run on the ground and in this connection the Director of Surveys was advised to arrange with the Surveyor-General to make the necessary observations which must be done in advance of the actual running of the line.

General.—The unusual activity in the Turner Valley and other oil fields of the province reacted to a great degree on this Division with the result that four

draughtsmen were assigned to cope with the rush of applications. On this account other work was unavoidably held up. The situation was further aggravated by the resignation during the year of three members of the staff, all of whom left to take more remunerative positions. As there is no doubt that with the betterment of conditions more situations outside the service are becoming available, it would seem opportune in the interests of efficiency to give consideration to a revision of the salary schedule of this Division which is admittedly low in view of the responsible and exacting nature of the work involved.

During the year close contact has been maintained with other Departments in as far as map requirements are concerned, including the new Department of Trade and Industry. The personal and written requests for maps and relevant information have increased to such an extent that the whole of one man's time is practically taken up with these enquiries.

There has also been a large increase in the number of maps, plans, sketches, graphs and legal descriptions prepared by the Division and correspondence in connection therewith.

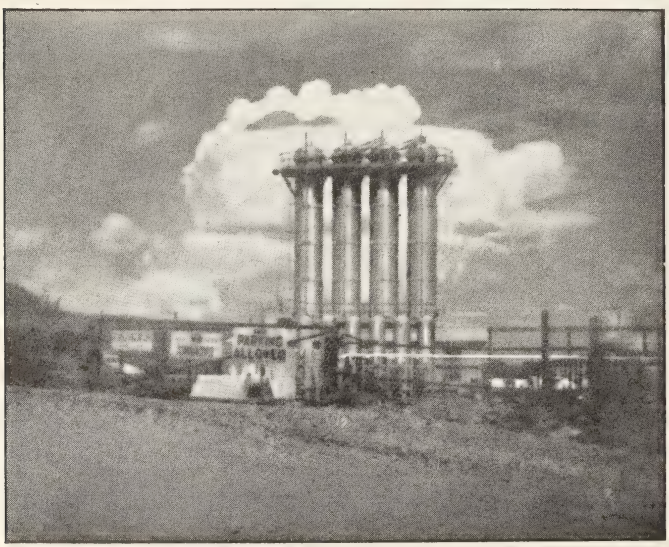
Petroleum and Natural Gas

REPORT OF THE DIRECTOR OF PETROLEUM AND NATURAL GAS, C. W. DINGMAN

The picture of Alberta's oil resources changed rapidly during the year. On June 16th, 1936, Turney Valley Royalties, No. 1 well, was completed at 6,828 feet, a distance of 432 feet in the Madison limestone. Where other limestone wells had started production with a roar of gas in quantities ranging up to twenty or thirty million cubic feet per day and conveying principally a volatile naphtha which must have been borne in the reservoir as a vapour, this well, after ejecting the last of the column of drilling mud, merely gave out a quiet flow of gas of about two million cubic feet a day, but carrying a spray of oil which in the first fourteen days of production put an average of 850 barrels into the tanks. Its gravity (about 45° to 47°) and general characteristics showed that it must have been in a liquid phase in the natural limestone container. This well proved the existence of a pool of liquid phase oil lying down the west flank of Turner Valley and explained the gradual change that had been occurring for some time at certain wells which originally produced a high gravity naphtha and subsequently a discoloured product of fairly high gravity with later a heavier product containing wax and lubricating fractions.

The base of the crude is intermediate (wax bearing) and it is sour (contains sulphur as hydrogen sulphide and mercaptans).

Operators were encouraged by the discovery in Turner Valley Royalties, No. 1, and twenty-eight permits to drill were issued during the remainder of the fiscal



Part of Royalite absorption plant, No. 1

year for wells in Turner Valley, with some impetus being given to drilling in other parts of the province. Total permits for the fiscal year were thirty-six as compared with eleven for the previous year.

Turner Valley completions arranged in order of dates of completion during the fiscal year were as follows:

	Depth	Date	Produces
Union Drilling Freehold, No. 1	6,462	May 1, 1936	Naphtha, small,
Turner Valley Royalties, No. 1	6,828	June 16, 1936	Crude, large,
British Dominion, No. 4	6,423	July 18, 1936	Semi-crude, medium,
Highwood Sarcee, No. 2	6,560	July 31, 1936	Naphtha, small,
Sovereign, No. 1	6,234	November 15, 1936	Naphtha, large gas,
Foundation, No. 1	6,474	November 19, 1936	Crude, large,
Sterling Pacific, No. 3	6,788	December 1, 1936	Crude, medium,
Renfrew, No. 1	6,550	December 10, 1936	Naphtha, small,
B and B Royalties, No. 1	6,609	February 2, 1937	Crude, large,
Westside, No. 1	6,374	March 2, 1937	Crude, medium,
Newfold, No. 1	6,254	March 5, 1937	Naphtha, small,
Dalhousie, No. 8	6,911	March 27, 1937	Failure, abandoned.

While not possible in all cases from returns made to the Division to distinguish between crude and naphtha, the following estimations show trends. Quantities are in barrels:

	Crude	Separator Naphtha	Plant Recoveries	Limestone Total
1935-36	137,287	528,089	531,117	1,196,493
1936-37	501,017	280,876	621,718	1,403,611

As in the previous year it will be seen that without liquid phase oil and increased plant recoveries there would have been a drastic reduction in total. In the case of liquid phase oil, five new producers greatly changed the situation.

For the calendar year, 1936 the apparent demand for oil in Alberta, after eliminating changes in storage, imports and exports, was 2,409,510 barrels as compared with 2,337,401 barrels for 1935. These figures include not only sales but refining losses both on oil used in the province and on oil refined within the province for export. A table showing total production of all fields within the province is given later.

Part of Royalite absorption plant, No. 1, and scrubbing plant

Drilling Activity Outside Turner Valley

Arca, No. 1, where an interesting unitized scheme had been drawn up, was still drilling at the close of March, 1937 at a depth of 8,924 feet, making it the deepest well drilled in Canada. Some showings of oil and gas were obtained but not on a commercial scale and it was abandoned shortly after at a total depth of 8,988 feet.

New Valley, No. 1, reached a depth of 7,255 feet with good showings of oil in the Cardium series. This test, located on the east flank of Turner Valley, is most interesting although the discoveries are not as yet commercial. Drilling was continuing at the close of the fiscal year. A little further east, Ranchmen's, No. 1, continued drilling below 7,079 feet.

In the foothills area west of Turner Valley, Roxana started an interesting test, reaching the Madison at shallow depth. By the end of March a depth of 2,353 feet was attained with operations still in progress.

Moose Oils, No. 2, not far from the No. 1 well, drilled to 740 feet and was preparing to resume after being shut down by winter weather.

Elbow, No. 1, continued drilling and attained at the close of the fiscal year a depth of 4,953 feet in an interesting location in the disturbed belt.

Banner, No. 1, south and west of Turner Valley, made some progress and Pekisko Hills, No. 1, was continued to 4,400 feet.

Farther north on the Red Deer river west of Olds, Hunter Valley, No. 1, attained a depth of 7,218 feet by the end of March and operations were continuing.

South, in the Lundbreck area, Maxmont and Marjon wells made progress. Near Cardston, Franco, No. 1, reached a depth of 4,580 feet without any substantial discovery of oil or gas. Near the Montana border Del Bonita Associated was drilling at 3,988 feet and Sunshine at 5,254 feet. Terminal, No. 1, was deepened to 5,131 feet. Near Pincher Creek, Weymarn drilled to 5,960 feet and was testing and drilling deeper.

In the vicinity of Taber, Plains, No. 1, was drilling at 3,212 feet and two further wells were planned for the coming season.

The Canadian Western Natural Gas Company drilled its No. 6 well at Brooks to augment the gas supply for the town.

Near the Red Deer river, north of Brooks, the Dominion Government started a well for gas, but the test was discontinued before reaching potential horizons.

A joint test by McDougall-McLeod Companies in the vicinity of Comrey was abandoned at 3,880 feet.

A well, known as Premier, No. 1, was started near Cremona. Little progress was made and at the end of the year it was preparing to resume drilling as Spindletop, No. 1.

In the Wainwright area no move was made to exploit the known oil horizon by further drilling in the proven area, but there was a demand for all oil produced and a very considerable amount of imports was refined locally for tractor distillates. Montreal Alberta, No. 1, was deepened to 3,400 feet and was being tested for possibilities of production in the palaeozoic limestone. A test was drilled by Altoba north of the proven area, using a diamond drill, but was discontinued before reaching potential horizons. Another test in this general area was preparing to drill under the name of Sam Taylor (Battleview Oils). In the field once known as Ribstone, Dina Oil Company made some progress in rehabilitating the abandoned Meridian, No. 2, and near Dunn, London Ribstone

Oil Company was preparing to resume operations in its No. 2 well after being shut down since 1930.

At Vermilion, Tenwell, No. 1, was deepened to 2,087 feet without gaining any definite information.

Drilling operations were conducted at Waterways to prospect for salt. A salt bed 199 feet thick was proven, its top being at a depth of 699 feet. The first prospect hole was too small to use for production and a second hole was under way by the end of March.

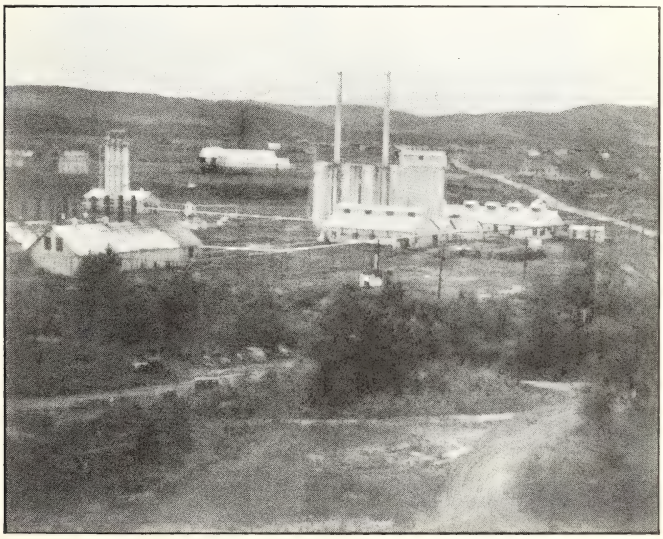
Gas Fields

Tests of gas wells in Turner Valley were made in June, 1936, the customary procedure being followed which includes blowing of wells for a period of one hour for removal of any liquid accumulated at the bottom, observation of closed pressure at the end of twenty-four hours and rate of flow at two-thirds closed pressure. Pressure ranged from 1,420 pounds in a newly completed well at the south end of the field to a minimum of 385 pounds in section 20, township 19, range 2, west 5th meridian. Gas withdrawals during the year totalled 87,000,000 Mcf. as compared with 90,250,000 Mcf. for the preceding twelve months, total withdrawals to date being 894,360,000 Mcf.

Repressuring of Bow Island Field.—During the fiscal year 1,483,258 Mcf. of gas from Turner Valley was pumped into the field, the pressure by March 31st being about 532 pounds. This interesting experiment has been in progress since 1930 and a total of 10,531,184 Mcf. has been injected since the operation started.

Foremost Field.—No gas was drawn during the year. The field remains as a stand-by, ready to meet emergencies.

Medicine Hat Field.—No report was received on closed pressure tests in 1936, but some operations were undertaken in the way of repairs to wells and pipe-



Another view of Royalite scrubbing plant

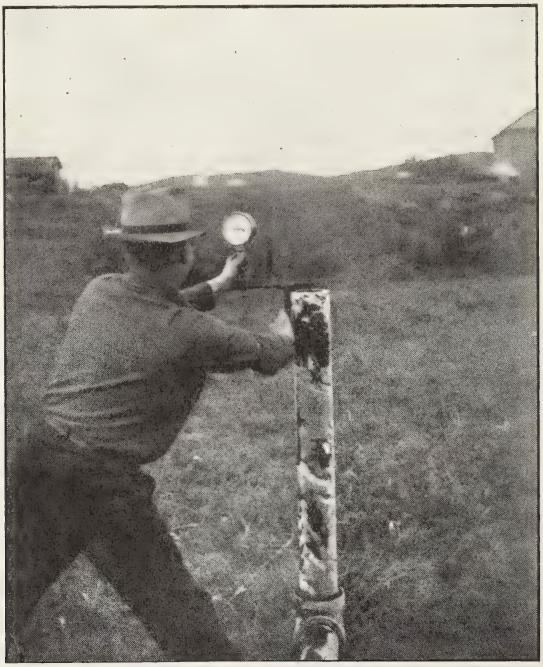
lines. A start was made at odorizing gas as an indication of leaks in residential and other connections and so many leaks were found in house piping that only intermittent odorizing could be carried on until repairs had been made. The discovery of these leaks proves the value of odorizing all gas used for domestic purposes. Demand for gas has been well within the capacity of the field and the supply continues as a valuable asset to the city.

Brooks Field.—Six wells, having low pressure and small capacity, supply the town.

Viking Field.—Cleaning out operations are carried on each summer and necessary repairs are made. The annual closed pressure test of the field showed the pressure decline to be quite moderate.

Kinsella Field.—Remains as a reserve, accessible when Viking field becomes depleted.

Fabyan Field.—Wells were not tested officially but a company report indicates a pressure of 550 pounds in the spring of 1937. Two wells supply the town of Wainwright.



Measuring flow of well with a pitot tube

Bituminous Sands

During the summer of 1936 a plant was erected near McMurray for separation of sand from the bitumen and a test run was made in the fall. Plans for 1937 call for installation of a plant for manufacture of gasoline, diesel and tractor fuels, road oils and asphalts. Increased mining activity in the country north of McMurray offers an opportunity for testing out commercial uses of the vast deposits in this area and it is hoped that fuels suitable for use in exploitation of the mineral resources may be developed.

OIL PRODUCTION FOR FISCAL YEAR 1936-37

	Barrels	Value Estimated
Turner Valley Limestone, naphtha	280,876	$ 676,393
Turner Valley Limestone, crude	501,017	900,576
Turner Valley Limestone, natural gasoline	621,718	1,414,958
Turner Valley, shallow crude	11,909	25,040
Red Coulee-Border, light crude	16,386	19,004
Wainwright, heavy crude	15,155	14,876
Miscellaneous	600	480
TOTALS	1,447,661	$3,051,327

Note that there was no sharp division between naphtha and crude from Turner Valley limestone and it has been necessary to make arbitrary assumptions. The price of crude varies with gravity and again these assumptions have been used.

The quantity "barrel" consists of 35 imperial gallons and is the same as the United States barrel of 42 U.S. gallons.

SUMMARY OF OIL PRODUCTION IN ALBERTA

By Fiscal Years

	Turner Valley Limestone	Shallow	Red Coulee	Wainwright	Miscellaneous	Total
1914-35	7,997,897	403,662	212,470	72,934	21,498	8,708,461
1935-36	1,196,493	17,220	20,051	13,958	1,874	1,249,596
1936-37	1,403,611	11,909	16,386	15,155	600	1,447,661
TOTALS	10,598,001	432,791	248,907	102,047	23,972	11,405,718

SUMMARY OF OIL PRODUCTION IN ALBERTA

By Calendar Years

	Turner Valley Limestone	Shallow	Red Coulee	Wainwright	Miscellaneous	Total
1914-34	7,694,413	398,395	207,234	69,662	21,498	8,391,202
1935	1,208,321	18,691	20,536	14,638	1,564	1,263,750
1936	1,274,119	13,119	17,937	14,957	310	1,320,442
1937 (3 months)	421,148	2,586	3,200	2,790	600	430,324
TOTALS	10,598,001	432,791	248,907	102,047	23,972	11,405,718

OIL PRODUCING WELLS IN THE PROVINCE

As at March 31st, 1937

	Producing	Closed in	Total
Turner Valley, oil and gas	88	20	108
Turner Valley, light crude only	6	....	6
Red Coulee	7	1	8
Wainwright	7	2	9
Miscellaneous	1	1	2
TOTALS	109	24	133

GAS WELLS NOT INCLUDED WITH OIL WELLS

Medicine Hat-Redcliff	46
Bow Island	11
Foremost	6
Milk River Area	3
Viking	23
Kinsella	3
Fabyan	2
Brooks	6
TOTAL	100

Numerous wells which serve only a single consumer are not included.

COMPARATIVE STATEMENT OF FOOTAGE DRILLED IN WELLS

Fiscal Year	Turner Valley	Foothills West of Turner Valley	Rest of Province	Total
1930-31	112,043	14,373	88,544	214,960
1931-32	37,695	2,173	36,505	76,373
1932-33	13,812	813	21,495	36,120
1933-34	65,773	2,417	14,183	82,373
1934-35	70,555	4,850	15,163	90,568
1935-36	24,383	6,120	25,999	56,502
1936-37	70,275	8,682	38,048	117,005

GAS USED IN ALBERTA 1936-37

Quantities in Mcf. (Thousands of Cubic Feet)

From Foremost		Nil
From Turner Valley:		
Calgary-Lethbridge	6,595,667	
Refinery	995,824	
For storage and fuel, Bow Island repressuring	1,561,593	
Bow Island town	50,654	
Field use (mostly estimated)	3,103,495	
		12,307,233
Brooks		51,010
Edmonton and towns		3,129,978
Wainwright, town	111,787	
field use, estimated	18,000	
		129,787
Medicine Hat		2,118,029
Redcliff		735,899
Exported to Montana (includes some gas for field use in Montana)		222,617
Red Coulee, field use in Alberta		10,346
Miscellaneous, field use		22,600
TOTAL		18,727,496

ESTIMATE OF WITHDRAWALS AND WASTE OF GAS FROM TURNER VALLEY

	Mcf. Drawn	Mcf. Wasted
To end of March 1935	717,110,000	614,050,000
1935-36	90,250,000	78,020,000
1936-37	87,000,000	74,710,000
TOTALS	894,360,000	766,780,000

Peg Model of Turner Valley Field

A peg model of the Turner Valley field, photographs of which accompany this report, is maintained in the geological laboratory, located in the Calgary office of the Division in the New Telephone Building on Sixth Avenue in Calgary.

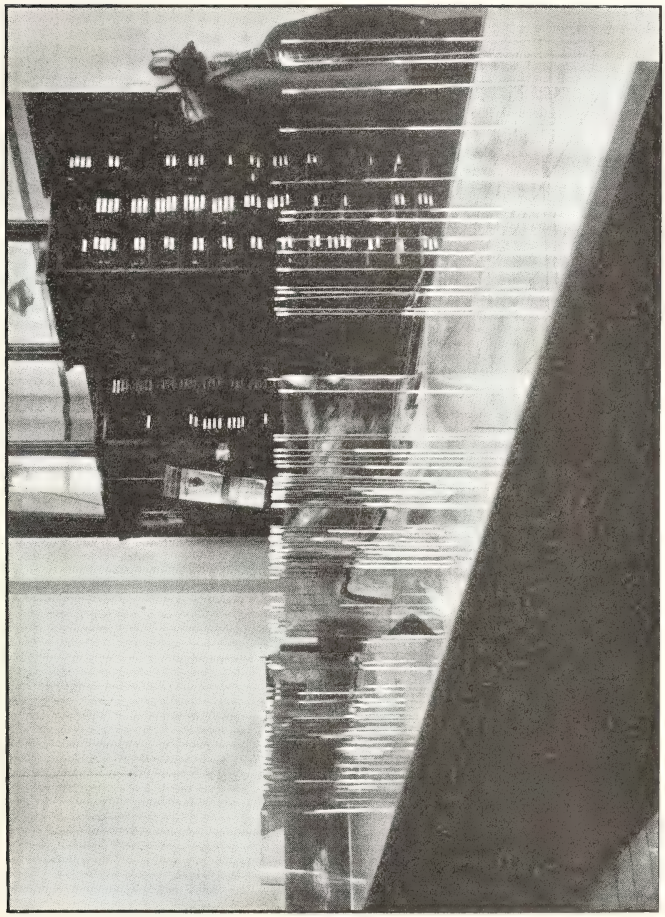
The base of the model is a map of the field on a scale of 10½ inches per mile with the pegs or rods which represent the wells accurately located.

In this laboratory formation samples and cores of wells being drilled are examined and by means of various painted colours the formations penetrated in the wells are placed to scale on the pegs or rods.

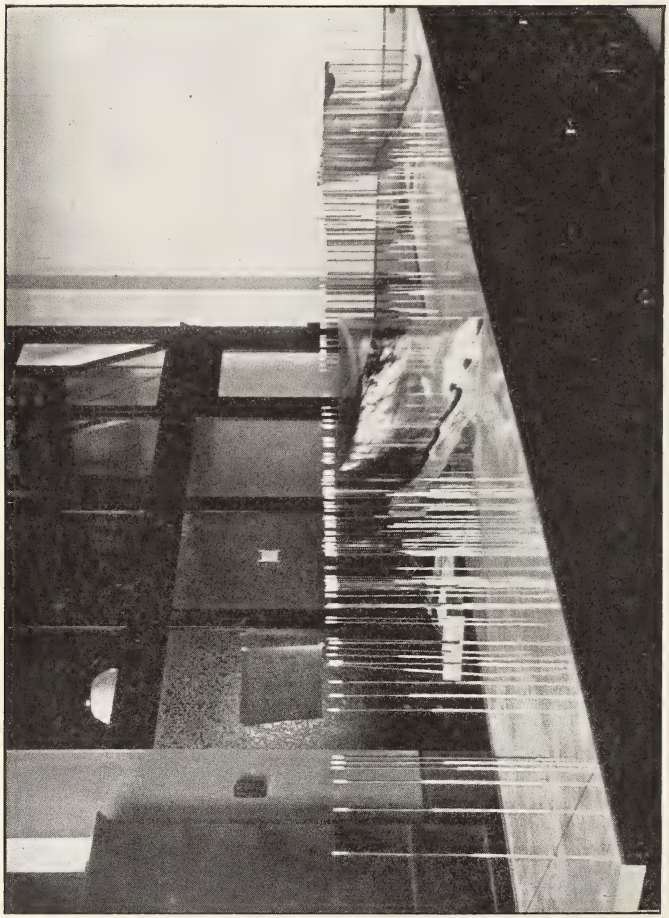
While the various colours do not register in the photographs, the elevation of each well is noticeable, being at the base of the white painted tip of the peg and the limestone contact at the base of the darker coloured paint is also recognizable. The altitude of this horizon is further shown by the small cord leading from well to well.

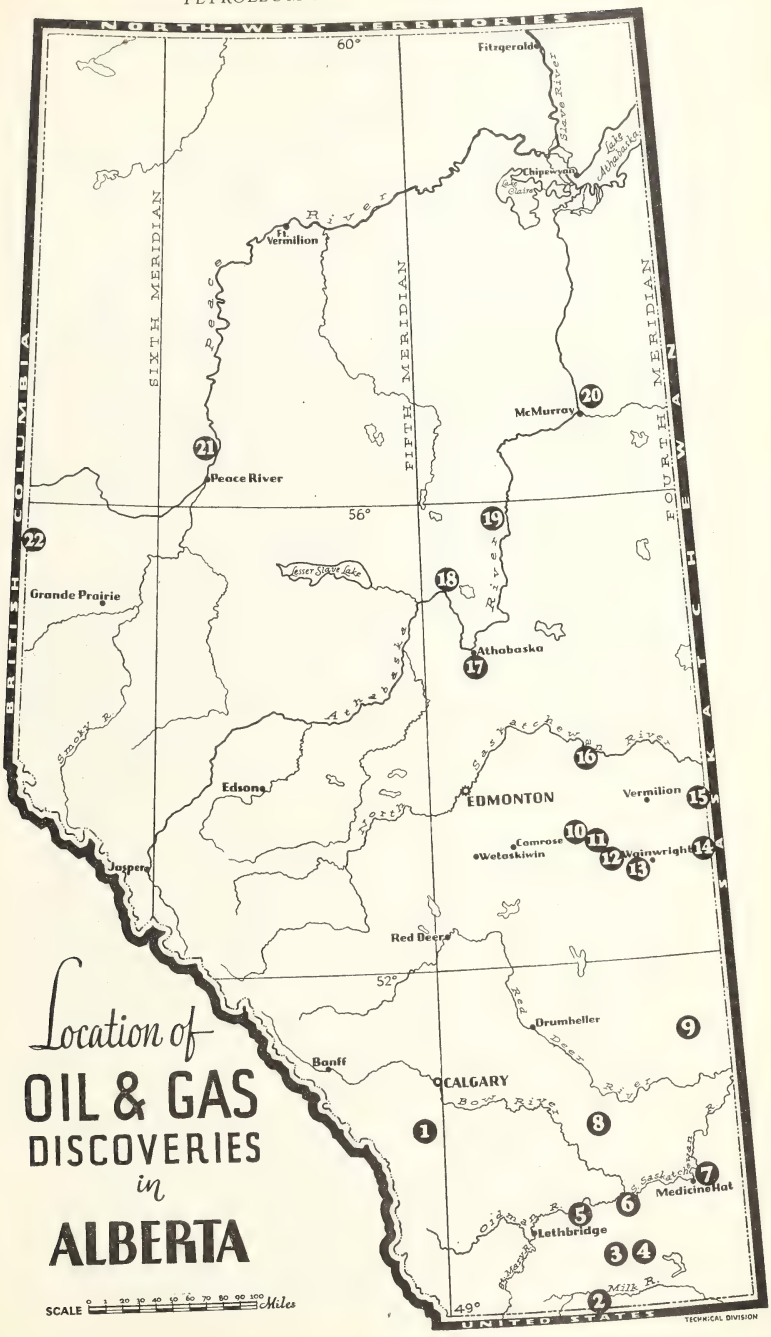
Two cross sections have been prepared and inserted in the model which illustrate the dips of the formations as found in the individual wells.

Peg model of Turner Valley field looking south-west. For description see page 42.



Peg model of Turner Valley field looking south-east. For description see page 42.





Key to map on page 46.

KEY TO MAP

1. Turner Valley. Producing oil and gas field.
2. Red Coulee. Producing oil field; light crude.
3. Skiff. Heavy crude oil. Not producing.
4. Foremost. Gas field-reserve.
5. Barnwell. Small gas field.
6. Bow Island. Gas field being repressured from Turner Valley.
7. Medicine Hat. Gas field supplies city.
8. Brooks. Small gas field supplies town.
9. Oyen. Showings of heavy oil. Not developed.
10. Viking. Gas field supplies Edmonton.
11. Kinsella. Proven gas field not yet in use.
12. Fabyan. Two wells supply Wainwright with gas.
13. Wainwright. Producing oil field. Heavy crude.
14. Dina. One producing oil well and others drilling.
15. Lloydminster. Gas produced on Saskatchewan side of boundary used in town.
16. Duvernay. Gas discovery may prove a field.
17. Athabaska. Heavy oil discovered but not developed.
18. Smith. Gas discovered but not developed.
19. Pelican. Gas discovered.
20. McMurray. Vast deposit of bituminous sands.
21. Peace River. Heavy oil, not developed. Also little gas.
22. Pouce Coupé. Gas discovered.

Forestry

REPORT OF THE DIRECTOR OF FORESTRY, T. F. BLEFGEN

The fiscal year 1936-37 was a very favourable one with reference to both timber operations and departmental revenue. While the local market did not absorb outstanding quantities of lumber, exports from the province to other parts of the dominion and the United States provided an increased outlet that is reflected in departmental returns. Tie replacement on railways continues to account for a large portion of the timber business, and it is probable that if, in Alberta, the accessible stands of mature and patential tie timber can be protected, the province will continue to hold its position with respect to this timber product.

The important feature that has been lacking during the past few years, and which is still largely absent, is the local market for lumber. A resumption of building construction is required to provide a good provincial market and when such construction work is resumed on a scale large enough to meet requirements that are only too apparent, then the lumber industry will again operate on a scale which cannot but react favourably in many directions.

For a great many years the settlement of land by homesteading has carried with it the right to secure a stipulated amount of crown timber free for use in developing the homestead. Beyond the amount thus obtainable, the settler paid for his lumber and timber as any other individual. In recent years, however, the difficulties of individual settlers, together with the presence of the crown timber resource, has resulted in representations envisaging a broader consideration for the settler. The result is that a large quantity of cheap lumber comes on the market by reason of the permission given to trade a portion of the free allowance for milling services. As the amount of lumber so released on the market is considerable, this movement undoubtedly has a noticeable effect on what may justly be termed the normal local or provincial demand for manufactured forest products.

The free timber allowance to homesteaders is designed to provide an attraction to land settlement but it must be recognized that the allowance may only be enjoyed where the timber is present within a distance that permits the homesteader to secure it economically, and it will be apparent at once that the privilege is of no practical benefit where such conditions do not exist. The value of the free timber allowance to satisfactory land settlement is questionable for in effect it puts something of a premium on the settlement of marginal and sub-marginal lands, usually unfit for agriculture and, in many cases, abandoned after a trial during which the land has been denuded of its most valuable crop, the timber, and often the adjacent lands denuded of forest cover through uncontrolled fires. In addition, there is of course the loss of labour involved in the effort to bring such land under agricultural development.

The free allowance under existing circumstances is, in many cases, dissipated to the extent of half through the payment for manufacture by way of toil. As a result, the allowance once believed to be an important concession in encouraging land settlement is only partly used in the improvement of the property. As an aid to good settlement, the free allowance is of doubtful value, and it is distinctly against forest management or forest protection.

The cut of railway ties continues to provide a large portion of the revenue derived from the provincial timber resource. If this business holds and any

considerable building construction activity commences, the drain on accessible merchantable timber will be more apparent and the necessity of correlating settlement and forest policy will be emphasized. Likewise, the importance of sound forest management and of adequate forest protection will be generally apparent. It is probable that development will force a consideration of the problems involved and action on them. It is, however, regrettable that suitable preparation cannot be made in advance.

The past two years have furnished extreme conditions with respect to forest protection. Whereas in the fire season of 1935 a year of unprecedented low fires was experienced, the 1936 season was at the other extreme for a large portion of the foothill and mountain section. The year of heavy fire loss following immediately on the one of lowest recorded loss provides an immediate and startling comparison. The proof is found in these two years of the contention that has been made repeatedly, namely, that the regular summer staff of the Forest Service is competent to deal with fires up to a certain intensity of number but as the number of fires extend beyond this, the staff is found to be more and more inadequate to meet field requirements. A similar situation exists with respect to fire-fighting equipment. The remedy will be found in preventive measures, and it may be remarked here that remedy by prevention is logical and sound, and its application in the interests of the province should not be delayed.

The cumulative effect of forest denudation by annual fires and cutting is noticeable in several directions now and if forest resources continue to be dissipated as in the past, it can only be a short time until a serious situation confronts forest industry, and the scarcity of accessible merchantable timber will be reflected in prices to the consumer. This, however, is not the whole implication of forest depletion. The known effect of the loss of forest cover on watershed protection, stream flow regulation, soil erosion, game, fish and scenic attraction all weight the scale heavily in favour of a sound policy of forest protection and management.

The work of the field staff on forest administration has been of a high order and the amount of work dealt with shows an increase over the preceding year. In addition and particularly for rangers and assistants, a more definite responsibility was placed, and a very considerable extra amount of work undertaken from the time the Game Branch was transferred from the Department of Agriculture to the Department of Lands and Mines.

In many respects the field staff of the Forest Service is peculiarly fitted to undertake game administrative work. Forest cover is a necessity for most forms of wild life so that the effort for forest protection naturally favours most forms of game. In addition, there is the fact that rangers and assistants, by reason of the requirements of their positions and their training in conservation, are eminently suited for field administration of game. There is also the point that the activities of hunters and trappers are directly related to forest protection so that all in all the change whereby the field administration of the Game Act within forested territory came under forest officers was a happy one and promised well for the future.

The forest nursery at Oliver was continued on the same scale as was reported for last year. A fairly early spring with warm dry weather created a difficult situation for lifting and shipping tree stock and this was further complicated by the limitations on packing facilities and the main labour employed which is drawn from the inmates of the Oliver institution. A considerable improvement in the entire operation is possible with the expenditure of a small amount of funds for packing shed and labour. A further improvement that might be effected in the

event of the nursery output becoming sufficiently increased is that of a definite undertaking to supply tree stock to a defined portion of the province, leaving the balance to the dominion nursery at Indian Head. Annual production and shipping costs would indicate the territory to be served by each nursery.

Forest Protection

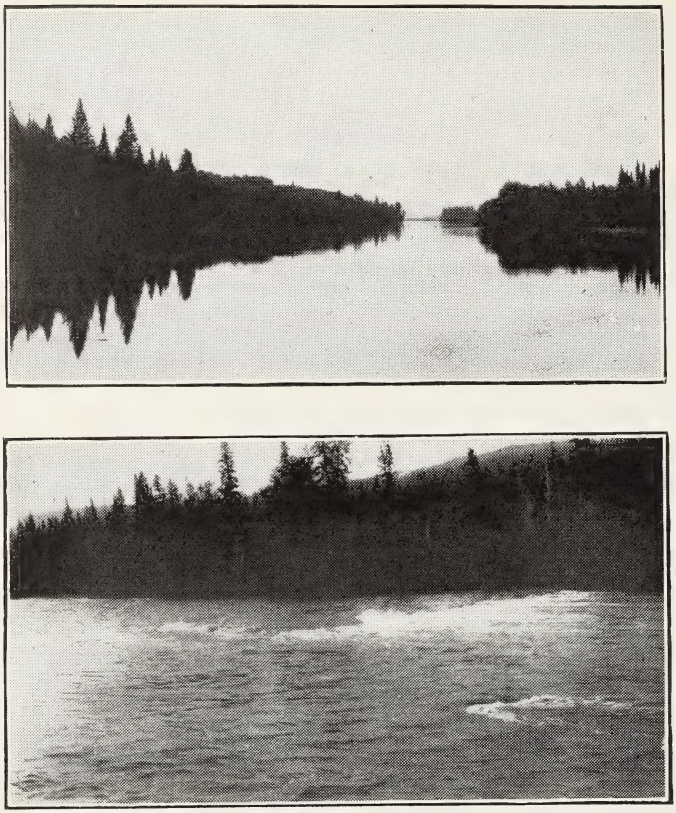
The term "forest protection" usually brings to mind the protection of forests from fire but in reality the term embraces all agencies that in one way or another cause destruction of forest cover. Fire has been the most destructive agent of forests in the province but it is probable that other forms of destruction will appear unless control measures being sought in other parts of Canada are put into effect. In particular, it is to be hoped that the destruction of pine and spruce by agencies other than fire and wind will be controlled in other parts of the Dominion before such destruction extends into Alberta.

The principal forest destruction in this province, arising as it does from fire, and the fires originating largely as a result of various forms of human activity, presents an answer to the problem which is apparent. There is evident an appalling carelessness in the use of fire and a callousness or apathy towards losses thus caused. Every spring ground fires are present which have originated as a result of various forms of acivity and which, if the season is a dry one, will provide fires which must be fought and controlled.

Settlers in the spring of every year have to burn bush and when this is done without adequate precautions and during hot, dry weather, a number of fires always run out of control. Add to this the careless forest traveller with the unextinguished camp fire, and it will be realized that every year is potentially a bad fire year.

Experience over many years has shown that as long as a minimum field staff is employed, and largely employed only seasonally and for an absolute minimum length of season, in a region such as Alberta embraces, heavy fire losses are bound to occur. A realization of the drought conditions which are faced in this province all too regularly provides an indication of conditions which seriously endanger the forest resource. In the protection of this resource the province is dependent to a large degree on weather conditions. These conditions, if favourable, result in the extinguishing of a large percentage of incipient fires but, if unfavourable, field staff coverage is insufficient to meet the emergency. The stress should be on prevention to a much greater extent than is now the case.

Fire Season.—The winter preceding the 1936 fire season produced in the mountain and foothill region a fairly heavy snowfall during the early winter and long periods of low temperatures. The depth of frost in the ground was probably greater than usual and, with the early spring break-up which was accompanied by fairly high temperatures and no precipitation, the surface run-off was greater than usual. The late spring and early summer produced very little precipitation and from mid-June to mid-August there was almost an entire absence of rain. This period was one of the most hazardous for the forests of the province that has been experienced. High temperatures, strong winds sometimes approaching gale proportions and low humidity, combined with the low moisture content of soil and forest litter, produced a condition that was most favourable for the easy ignition and rapid spread of fire and it was during this period that difficulties of the gravest nature were encountered. During the latter part of August and all of September the danger was eased by intermittent showers. The precipitation was not sufficient, however, to definitely conclude the fire season and in the fall another dangerous period developed which continued without relief until along in December.



Timber stands on the Clearwater River

During the season conditions over a large portion of the Northern Alberta Forest District were reasonably satisfactory but those divisions such as Edmonton, Edson and Grande Prairie, which are subject to the influence of mountain and foothill weather, experienced hazardous periods only slightly less intensive than those which prevailed throughout the Rocky Mountains Forest Reserve. A noticeable shortage of rain was evident over the McMurray division which embraces the north-eastern area of the province. In this division a hazardous period arose in the late summer and fall.

Fire Prevention.—Measures known to meet the requirements of fire prevention were employed to the extent possible under existing limitations of permanent and seasonal staff, and the commencement of the employment period for seasonal staff. A very real danger has existed for several years in delaying the opening date of employment of the seasonal ranger staff. Such delay largely eliminates any opportunity for preventive work and results in active fire-fighting operations, often immediately following the placing of the men in their districts. The slight saving which may be effected in salaries is usually more than offset by

the expenditure of funds on fighting fires which have developed prior to the employment of seasonal staff.

Early in the season it was apparent in the regions affected by drought that an exceptional effort would be required if the situation were to be kept in hand. Through travel permit, registration of travellers and patrol close contact was effected with all persons entering or travelling through forested territory and the public responded by giving splendid assistance. Despite every precaution fires occurred but were either controlled or extinguished with the exception of two unfortunate instances which will be touched on later in this Report. It became necessary to close the Rocky Mountains Forest Reserve to the general public from the southern boundary north to the Brazeau River for as the season passed the field staff gradually were engaged to the fullest extent in combating fires so that it became necessary in the interest of public safety, and in order to prevent so far as possible further fires arising as a result of human activities, to deny entry to the hazardous region.

BURNING PERMITS ISSUED, PROVINCE OF ALBERTA, 1936

By the Forest Service:			
Cypress Hills	.....		
Crowsnest-Bow River	14		
Clearwater	412		
Brazeau-Athabaska	10		
By the staff of the Forest Reserves		436	
Edmonton	56		
Edson	118		
Athabaska	111		
Bonnyville	.....		
McMurray	19		
Slave Lake	361		
Grande Prairie	170		
Peace River	148		
By the staff of the Northern Alberta Forest District		983	
Sub-total		1,419	1,419
By Outside Agencies:			
Honorary Fire Guardians:			
Edmonton	63		
Edson	138		
Athabaska	84		
Bonnyville	42		
Slave Lake	139		
Grande Prairie	29		
Peace River	117		
		612	
Fire Guardians in Municipal Districts		183	
Royal Canadian Mounted Police		266	
Sub-total		1,061	1,061
TOTAL			2,480

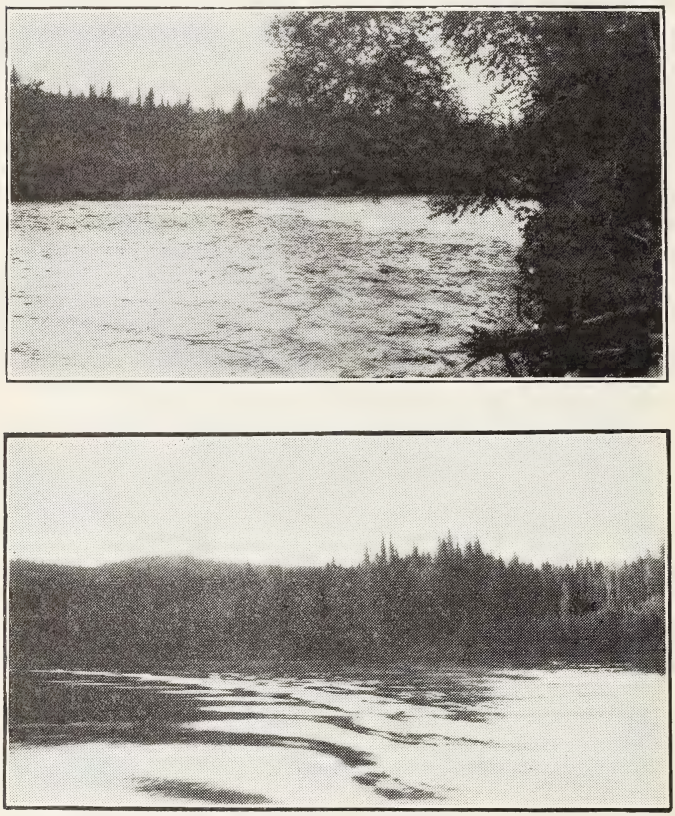
PROSECUTIONS AND CONVICTIONS, PRAIRIE FIRES ACT, 1936

	Instituted by Forest Service	Instituted by other Agencies	Totals
Number of prosecutions	....	10	10
Number of convictions	....	7	7

Fire Detection.—While fire prevention efforts seek to eliminate fire occurrence, it is realized that our present preventive measures fall far short of meeting the situation and, aside from fires caused by man, there are fires originating from lightning and the somewhat remote possibility of fire from spontaneous combustion. Fires, whether they occur in the forest or a city, must be reported and fought while still small if they are to be controlled without heavy expenditure and loss. The need for a means of detection that will provide for early reports on fires is only too apparent, and an enlargement of the detection service now in operation throughout most of the Rocky Mountain and Slave Lake regions has been emphasized on other occasions. Some of the most important forest areas of this province are provided with a most elementary form of forest protection, a

situation which neither does justice to the importance of the resource, nor to operators; nor does it encourage the development of the forest industry in potentially valuable timber areas.

Fire Suppression.—A comparison of the fire season covered by this Report with that immediately preceding serves to emphasize the remarks made in the Report of 1935. The 1936 season was abnormal to almost the same extent that the 1935 season was subnormal with the exception that 1935 conditions were general over the province whereas in 1936 it was very fortunate that the extremely dangerous conditions were present over but a portion of the forested territory.



Timber stands on the Clearwater River

The danger area coincided largely with the most highly organized and best manned forested area under protection in the province. Due to this it was possible to keep the situation in hand so long as fires of Alberta origin were the only fires to be coped with. Keeping this fact in mind, it is not difficult to visualize what might easily occur should similar conditions prevail over territory that is poorly organized for prevention and suppression purposes. Evidence of what actually takes place under such circumstances is to be found in the annual reports covering forest protection over a considerable period of years.

Fires which occur in British Columbia in the vicinity of the eastern boundary of that province always carry a threat for Alberta. The fiercest burning and the most favourable conditions for fast spreading arise during the hot, dry periods which are accompanied by strong west or south-west winds. A barrier to British Columbia fires entering Alberta exists along that section of the inter-provincial boundary which is formed by the summit of the Rocky Mountains. This barrier is usually effective except where passes are found or when fires have reached large proportions and, in addition to the normal wind, create terrific upward air currents. When this occurs the main range in south-western Alberta no longer stops the fires and, if the condition is severe, the fires will be spread over a large area when carried into Alberta.

While conditions were serious in Alberta and fires of Alberta origin had already been acted upon, two fires in British Columbia which carried a threat to Alberta came under observation. These fires were burning in the Flat Head and Elk River valleys, immediately west of and adjacent to the main range of the Rocky Mountains, the summit of which forms the inter-provincial boundary. The British Columbia authorities knew of the existence of these fires but were heavily engaged in other parts of the province. Both fires spread uncontrolled towards Alberta and it was evident that if the then prevailing weather continued, it would be necessary to defend all mountain passes leading from the fire areas into Alberta that provided sufficient inflammable material to carry fire. Arrangements were made to this end and fire-fighting crews stationed in the passes in the path of the fires.

It is possible that a more successful operation would have been an attack on the fires while still well in British Columbia. It was hoped, however, that those directly concerned would deal with the situation while it was still possible to do so and thus eliminate the possibility of the fires spreading to Alberta. This was not done and, on one of the worst days experienced in south-western Alberta during the summer, both fires were blown over the main mountain range on a wide front. The crews maintained in the passes instead of being an asset became almost a liability for the fires passed over them and trapped them.

A defence along the inter-provincial bounday was impossible under conditions that obtained on this particular day when the fires entered Alberta. The result of the spread of the Elk River fire may be understood when it is stated that almost immediately it entered Alberta in the Highwood Valley, there existed a fire on a front of roughly five miles. A very similar occurrence may be recorded in connection with the fire entering the Castle River drainage from the Flathead. Adequate preparations had been made to meet both these fires if ordinary fire weather had obtained but the preparations were completely nullified by unpredictable conditions which proved to be greatly abnormal. Had it been possible to have predicted the weather conditions, it must be admitted that a successful defence could not have been organized and, in any event, such preparation as would have been necessary would have. appeared entirely unjustified and, no doubt, would have been severely criticized.

These fires were fought continuously from the time they entered Alberta on July 23rd, 1936. In view of the large fire front established immediately they entered Alberta and of the continuing unfavourable weather, there was small hope of success. That hope, however, formed the basis of the effort made which, in effect, was to have sufficient man power, equipment and supplies on hand and fire lines established so that immediate advantage could be taken of any favourable weather change to control and extinguish the fires. As both conflagrations were in good, accessible timber, the effort and expense was justified and, in addition, there was the necessity of protecting forest cover on important watersheds, cover on favourite game ranges and preventing the fires from spreading east on to livestock ranges.

These fires which may have appeared comparatively unimportant while burning in British Columbia became an immediate menace in various directions just as soon as they spread into Alberta. In addition to the original entry into Alberta, they continued to carry another menace. In British Columbia they spread north along the west side of the main range, making it dangerous to place crews on the north flank of the fires in Alberta for there was the continual threat of fresh jumps over the main range and thus the trapping of crews on the north flank of the Alberta operations. Such jumps actually occurred, particularly from the southern fire which was reported to have jumped the main range five times as it worked north. Another danger appeared as the Elk Valley fire worked north towards the Elk Pass. This pass leads from the Elk Valley to the Kananaskis Valley and it became apparent that a defence in it would be necessary unless a rain or snowstorm occurred. In order to stop this part of the fire from entering the Kananaskis Valley, a crew of some seventy-five men were employed and a successful operation concluded, but only after a very strenuous effort had been made which involved moving men, equipment and supplies into the Kananaskis Lakes and Pass district, the last stages of transportation being via pack horse.

These fires account for the major fire-fighting cost and loss of timber during the season. They burned over 102,422 acres in Alberta, causing an estimated loss of $1,274,367.18, based on timber dues, and cost $68,995.45 in fire-fighting operations. In addition, their presence made fire detection so difficult that other fires in the same general districts broke out as a result of lightning strikes and were only detected after they had gained considerable headway. This is directly attributable to poor visibility caused by the smoke of the fires in the Castle River and Highwood River valleys. Indirectly then, they were responsible for a much larger loss of timber and cost of fire-fighting than is represented by the above figures. The Flat Creek fire and the Coal Creek fire, both of which started from lightning and to the east of the Highwood fire, burned over 17,045 acres, causing a loss of timber of $86,879.90 and cost of $13,834.46 for fire-fighting.

The major losses and fire-fighting costs were incurred on the Crowsnest-Bow River Forest and the Clearwater Forest. On the former, the situation originated with and was aggravated by the entry of the British Columbia fires and, on the latter, a Class D fire resulted from a lightning strike in inaccessible country and was difficult to control. Fire-fighting costs were $98,240.46 and $15,373.54 respectively, a total of $113,614.00 for the two forests. The relationship of the situation on these two forests, as compared to the entire provincial situation, will be realized when fire-fighting costs are compared; the Crowsnest-Bow River and Clearwater Forests $113,614.00, the entire province $122,542.29.

The loss and expenses incurred as a result of the entry of British Columbia fires warrants most serious consideration. Such fires may originate in districts of British Columbia of relative unimportance from a conservation or forestry standpoint, but on entering Alberta become a serious threat to more than just the forest cover. That this menace is very real when hazardous fire conditions exist in Alberta at the time when such fires occur in south-eastern British Columbia in the vicinity of the inter-provincial boundary is definitely indicated by the number of occasions on which these entries have occurred.

Causes.—The Service acted on 248 fires during the season, of which 149 were extinguished while in the small class, that is, classes A and B, all being under ten acres. Of the remainder, 71 exceeded ten acres but were under 500 acres, and 28 were in Class D, over 500 acres.

It is significant that campers were responsible for the largest number, 95 being charged to this source. The heaviest loss came from those few fires termed "unclassified", which group includes the fires from British Columbia and this

group is followed by the "lightning class". Of course neither of the latter groups are in the class that are subject to any form of prevention control. Of significance also is the fall in the relative number of settlers' fires. Conditions for settlers' clearing fires were unfavourable and the fact is reflected in the returns covering the Northern Alberta Forest District.

COMPARISON OF FIRE CAUSES BY PERCENTAGE

Causes	1931	1932	1933	1934	1935	1936
Campers	23.7	52.8	38.9	35.4	42.3	38.3
Smokers	3.2	5.3	13.5	11.7	9.3	9.7
Settlers	21.9	17.1	17.4	17.9	8.2	11.7
Railways	6.6	4.5	2.8	5.0	10.3	4.0
Lightning	.6	2.6	5.2	7.5	1.0	14.1
Industrial operations	1.9	1.1	1.7	4.2	1.0	3.2
Incendiary	15.1	8.2	11.8	11.2	22.7	10.1
Public works	1.4	.5	1.4	1.3	1.0	.4
Unclassified	1.5	1.6	.....	2.5	2.1	2.0
Unknown	24.1	6.3	7.3	3.3	2.1	6.5

RAILWAY FIRE LOSSES, CALENDAR YEAR 1936

This statement deals only with fires burning on forested areas under the supervision of the Alberta Forest Service and which started within 300 feet of the centre line of the railway right of way.

Causes and numbers of fires:

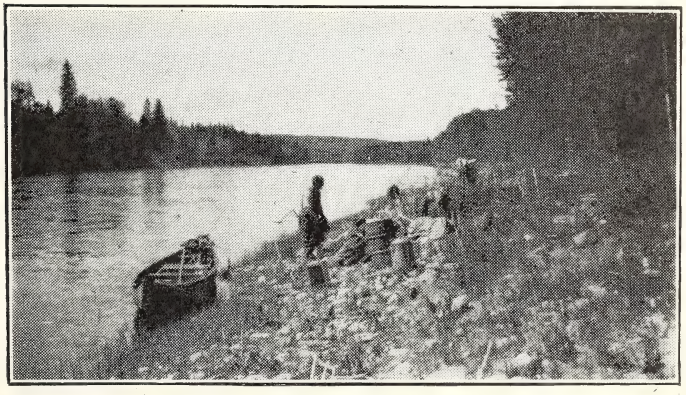
Railway causes—Locomotives	6	
Employees	3	
Sub-Total	9	
		9
Other causes—Campers and travellers	7	
Settlers	2	
Unknown	....	
Sub-Total	9	
		9
TOTAL		18

Number of acres burned:

Slashing or old burn	.....
Timber land	.....
Young growth	85
Not forested	239
TOTAL	324

Loss:

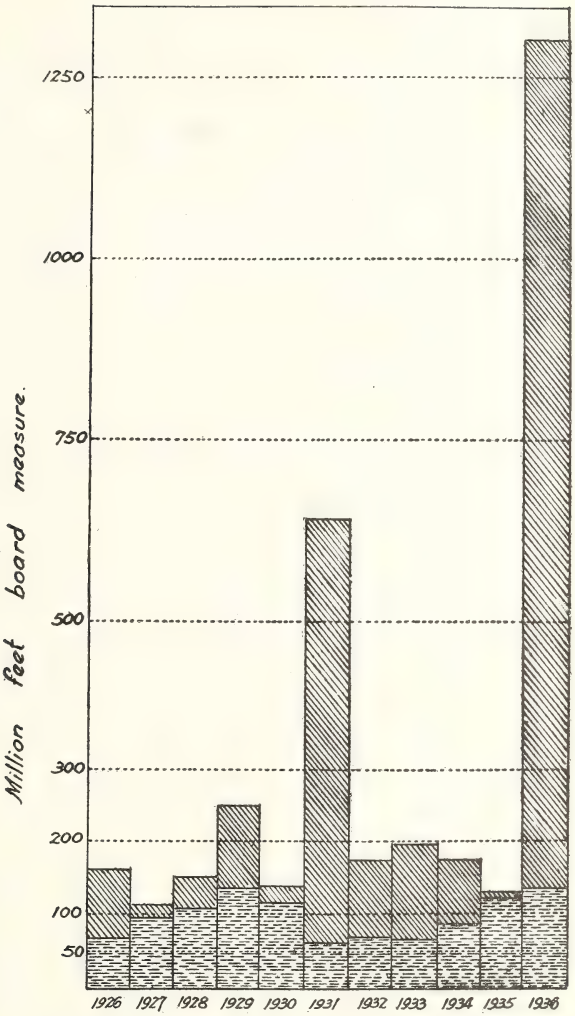
Timber	.....
Young growth	$426.00
Forest products	.....
Other property	.....
TOTAL	$426.00



Wabiskaw River looking north from below Bad Rapids

ANNUAL STATEMENT OF FIRES BY CAUSES, MONTHLY DISTRIBUTION, ETC., WITHIN AND OUTSIDE FOREST RESERVES, ALBERTA—CALENDAR YEAR, 1936

Cause	Number					P.C.	Damage	Area, Acres	Monthly Distribution														Prosecutions	Convictions	Fires Inside Provincial Forests		Fires Outside Provincial Forests	
	A	B	C	D	Tot.				January	February	March	April	May	June	July	August	September	October	November	December			No.	Area Acres	No.	Area Acres
Camp-fires	62	13	14	6	95	38.31	$ 72,857.39	28,018	...	...	...	...	13	22	18	22	9	10	1	...	...	...	4	11,320	91	16,698
Smokers	5	8	10	1	24	9.68	4,414.15	5,475	...	...	...	1	4	2	8	1	1	6	1	...	...	...	6	474	18	5,001
Settlers	1	6	16	6	29	11.69	2,228.87	8,463	...	...	...	...	10	3	1	1	...	13	1	...	...	...	...	.....	29	8,463
Railways	6	1	3	..	10	4.02	8.75	111	...	...	...	1	2	2	5	...	...	...	...	...	...	...	1	.....	9	111
Lightning	12	9	7	7	35	14.12	173,500.77	39,335	...	...	...	...	6	4	11	13	...	1	...	...	...	...	29	38,124	6	1,211
Industrial Operations	4	2	2	..	8	3.23	7,726.31	965	...	...	...	...	1	...	2	...	...	4	1	...	...	...	6	485	2	480
Incendiary	3	5	15	2	25	10.08	1,812.36	5,452	...	...	...	...	15	6	...	1	...	3	...	...	...	...	...	.....	25	5,452
Public Works	1	...	...	..	1	.40	.....	.....	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	.....	1	.....
Unclassified	2	..	...	3	5	2.02	1,274,367.18	106,422	...	...	...	...	...	1	2	1	...	1	...	...	...	...	3	106,422	2	.....
Unknown	7	2	4	3	16	6.45	13,014.52	10,213	...	...	...	...	5	2	4	...	...	4	1	...	...	...	3	8,640	13	1,573
TOTALS	103	46	71	28	248	100.00	$1,549,930.30	204,454	...	...	...	2	56	42	52	39	10	42	5	...	...	...	52	165,465	196	38,989
Per cent.	41.6	18.5	28.6	11.3	100							8	22.6	17.0	21.0	15.7	4.0	16.9	2.0				21.0	80.9	79.0	19.1



GRAPH OF TIMBER DEPLETION 1926 TO 1936.

Timber destroyed by Fire

Timber utilized

During this period of 11 years, the total depletion was 3,447,208,170 Feet board measure of which 31·17% was utilized and 68·83% destroyed by Fire.

FIRE CAUSES	NUMBER OF FIRES					LANDS AFFECTED							LOSS										SUPPRESSION COSTS			
	CLASS					Ownership		AREA	CONDITION				TIMBER (MERCHANTABLE AND CUT-OVER) SALVABLE			UNSALVABLE										
	A	B	C	D	Total	Public, Acres	Private, Acres	Total, Acres	Merchantable Timber, Acres	Cut-over Timber, Acres	Young Growth, Acres	Not Forested, Acres	Saw-timber, M.ft.B.M.	Other, Cords	Depreciation	Saw-timber, M.ft.B.M.	Other, Cords	Loss	Loss of Timber	Loss of Young Growth	Loss of Other Property	Total Loss	Ranger Service	Other Expenditure	Total	Burning Permits Issued
FIRES WITHIN FOREST RESERVES																										
Campers	3	...	...	1	4	11,320	.....	11,320	7,832	.....	640	2,848	.....	.....	.....	5,720	92,374	$ 39,610.25	$ 39,610.25	$ 1,610.00	$ 100.00	$ 41,330.25	$ 570.99	$ 5,771.64	$ 6,342.63	.....
Smokers	4	1	1	...	6	474	.....	474	.....	.....	275	199	.....	.....	.....	.....	.....	.....	.....	1,030.50	.....	1,030.50	57.00	284.33	341.33	.....
Railways	1	...	...	...	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lightning	11	7	5	6	29	38,117	7	38,124	26,523	190	6,961	4,450	570	.....	.....	48,216	280,165	157,310.39	157,310.39	15,277.25	.....	172,587.64	2,117.34	34,282.01	36,399.35	.....
Industrial Operations	3	2	1	...	6	485	.....	485	2	5	478	.....	3	25	.....	34	36	95.06	95.06	2,391.25	3,500.00	5,986.31	85.02	.....	85.02	.....
Unclassified	1	...	...	2	3	79,375	27,047	106,422	65,624	.....	27,198	13,600	7,000	.....	$ 7,000.00	830,789	374,735	1,210,989.93	1,217,989.93	56,377.25	.....	1,274,367.18	2,044.04	61,106.62	63,150.66	.....
Unknown	1	...	...	2	3	8,640	.....	8,640	2,079	.....	135	6,426	.....	.....	.....	433	17,284	8,802.82	8,802.82	168.75	.....	8,971.57	324.02	2,251.47	2,575.49	.....
TOTALS	24	10	7	11	52	138,411	27,054	165,465	102,060	195	35,687	27,523	7,573	25	$ 7,000.00	885,192	764,594	$1,416,808.45	$1,423,808.45	$ 76,865.00	$3,500.00	$1,504,273.45	$ 5,198.41	$103,696.07	$108,894.48	.....
FIRES OUTSIDE FOREST RESERVES																										
Campers	59	13	14	5	91	16,347	351	16,698	888	13	12,358	3,439	708	2,520	$ 1,651.75	565	984	$ 1,099.51	$ 2,751.26	$ 28,775.88	.....	$ 31,527.14	$ 571.09	$ 2,115.15	$ 2,686.24	.....
Smokers	1	7	9	1	18	4,589	412	5,001	19	3	1,249	3,730	12	3	.....	39	38	55.50	55.50	3,328.15	$ 110.00	3,383.65	170.52	606.59	777.21	.....
Settlers	1	6	16	6	29	3,689	4,774	8,463	252	396	952	6,863	24	38	10.75	5	3,455	884.37	895.12	1,323.75	10.00	2,228.87	281.21	512.42	793.63	.....
Railways	5	1	3	...	9	40	71	111	.....	.....	.....	111	.....	.....	.....	.....	.....	.75	.75	.....	8.00	8.75	12.10	3.00	15.10	.....
Lightning	1	2	2	1	6	931	280	1,211	230	70	508	403	.....	.....	.....	30	860	263.75	263.75	649.38	.....	913.13	94.61	223.87	318.48	.....
Industrial Operations	1	...	1	...	2	320	160	480	320	160	.....	.....	1,600	.....	.....	.....	.....	.....	.....	.....	1,740.00	1,740.00	141.29	1,094.26	1,235.55	.....
Incendiary	3	5	15	2	25	4,394	1,058	5,452	408	296	410	4,338	.....	16,355	266.25	8	680	261.74	527.99	1,284.37	.....	1,812.36	174.61	417.01	591.62	.....
Public Works	1	...	...	...	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Unclassified	1	...	...	1	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	351.43	5,522.72	5,874.15	.....
Unknown	6	2	4	1	13	1,528	45	1,573	708	35	703	127	30	4,200	1,080.00	12	.....	13.20	1,093.20	2,949.75	.....	4,042.95	128.19	1,227.64	1,355.83	.....
TOTALS	79	35	64	17	196	31,838	7,151	38,989	2,825	973	16,180	19,011	2,374	23,116	$ 3,008.75	659	6,017	$ 2,578.82	$ 5,587.57	$ 38,201.28	$1,868.00	$ 45,656.85	$ 1,925.05	$ 11,722.76	$ 13,647.81	.....
FIRES WITHIN AND WITHOUT FOREST RESERVES																										
Campers	62	13	14	6	95	27,667	351	28,018	8,720	13	12,998	6,287	708	2,520	$ 1,651.75	6,285	93,358	$ 40,709.76	$ 42,361.51	$ 30,395.88	$ 100.00	$ 72,857.39	$ 1,142.08	$ 7,886.79	$ 9,028.87	.....
Smokers	5	8	10	1	24	5,063	412	5,475	19	3	1,524	3,929	12	3	.....	39	38	55.50	55.50	4,248.65	110.00	4,414.15	227.52	891.02	1,118.54	.....
Settlers	1	6	16	6	29	3,689	4,774	8,463	252	396	952	6,863	24	38	10.75	5	3,455	884.37	895.12	1,323.75	10.00	2,228.87	281.21	512.42	793.63	.....
Railways	6	1	3	...	10	40	71	111	.....	.....	.....	111	.....	.....	.....	.....	.....	.75	.75	.....	8.00	8.75	12.10	3.00	15.10	.....
Lightning	12	9	7	7	35	39,048	287	39,335	26,753	260	7,469	4,853	570	.....	.....	48,246	280,025	157,574.14	157,574.14	15,926.63	.....	173,500.77	2,211.95	34,505.88	36,717.83	.....
Industrial Operations	4	2	2	...	8	805	160	965	322	165	478	.....	1,603	25	.....	34	36	95.06	95.06	2,391.25	5,240.00	7,726.31	226.31	1,094.26	1,320.57	.....
Incendiary	3	5	15	2	25	4,394	1,058	5,452	408	296	410	4,338	.....	16,355	266.25	8	680	261.74	527.99	1,284.37	.....	1,812.36	174.61	417.01	591.62	.....
Unclassified	2	...	...	3	5	79,375	27,047	106,422	65,624	.....	27,198	13,600	7,000	.....	7,000.00	830,789	375,735	1,210,989.93	1,217,989.93	56,377.25	.....	1,274,367.18	2,395.47	66,629.34	69,024.81	.....
Unknown	7	2	4	3	16	10,168	45	10,213	2,787	35	838	6,553	30	4,200	1,080.00	445	17,284	8,816.02	9,896.02	3,118.50	.....	13,014.52	452.21	3,479.11	3,931.32	.....
Public Works	1	...	...	...	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTALS	103	46	71	28	248	170,249	34,205	204,454	104,885	1,168	51,867	46,534	9,947	23,141	$10,008.75	885,851	770,611	$1,419,387.27	$1,429,396.02	$115,066.28	$5,468.00	$1,549,930.30	$ 7,123.46	$115,418.83	$122,542.29	.....
SUMMARY BY DIVISIONS																										
Cypress Hills	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Crowsnest-Bow River	15	9	7	8	39	117,893	27,247	145,140	88,095	371	32,933	23,741	9,193	60	$ 7,000.00	860,372	650,603	$1,347,751.08	$1,354,751.08	$ 72,738.90	$5,340.00	$1,432,829.98	$ 4,420.65	$ 93,819.80	$ 98,240.46	14
Clearwater	2	3	2	3	10	16,617	17	16,634	13,708	.....	2,168	758	.....	.....	.....	21,265	112,928	63,633.97	63,633.97	3,126.63	.....	66,760.60	812.69	14,560.85	15,373.54	412
Brazeau	11	1	1	...	13	201	...	201	175	.....	26	.....	.....	.....	.....	2,500	629	4,221.75	4,221.75	23.25	.....	4,245.00	139.58	1,073.25	1,212.83	10
Athabaska	1	2	2	1	6	4,087	.....	4,087	447	.....	576	3,064	.....	35	26.25	1,093	502	1,282.12	1,308.37	1,008.75	.....	2,317.12	435.46	983.45	1,418.91	
*N.A.F.D.	74	31	59	16	180	31,451	6,941	38,392	2,460	797	16,164	18,971	754	23,046	2,982.50	621	5,949	2,498.35	5,480.85	38,168.75	128.00	43,777.60	1,315.07	4,981.48	6,296.55	983
TOTALS	103	46	71	28	248	170,249	34,205	204,454	104,885	1,168	51,867	46,534	9,947	23,141	$10,008.75	885,851	770,611	$1,419,387.27	$1,429,396.02	$115,066.28	$5,468.00	$1,549,930.30	$ 7,123.46	$115,418.83	$122,542.29	1,419

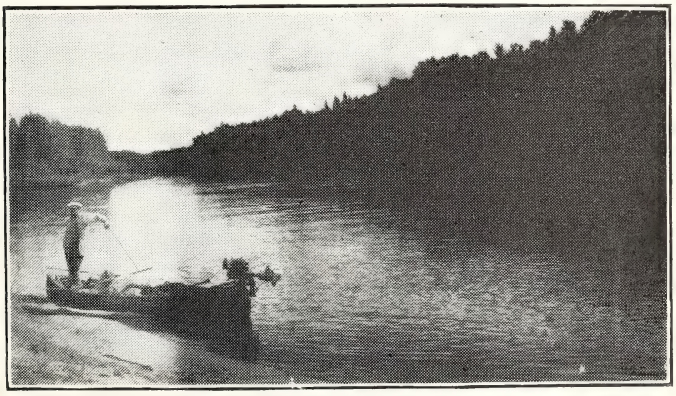
*N.A.F.D.—Northern Alberta Forest District.

Personnel.—The Forest Service staff remained practically identical with that of the preceding year with regard to individuals. There was no change in total staff employed.

There is nothing to add to the reports of previous years where the shortage of staff has again and again been emphasized. If the province has been fortunate in that fire outbreaks have not coincided with districts bare of personnel, it is certain that this will not always obtain. When outbreaks occur in unmanned districts the field staff weakness of the Service will be very apparent. The danger is that field staff is completely lacking in some districts that contain valuable timber which will be of commercial importance very soon. It will indeed be a misfortune if a heavy loss occurs before the necessity of protection is translated into action.

Fire-fighting Equipment.—The equipment situation remains unchanged and it is with regret that improvement in quantity cannot be reported. Funds made available for this purpose scarcely cover the necessary replacement of the present supply. If fires are to be fought effectively, the most modern proved equipment should be available in adequate supply.

Co-operation.—Co-operation which may be found in existence and which has appeared as a natural development and without any special effort is always mutually beneficial to all parties concerned. In order that co-operative effort in the interest of forest protection may reach its highest level, it is necessary that everyone has a reasonably good understanding of the benefits that the forests have in store for them. In order to arrive at this understanding, it appears that a programme of education is necessary. Largely, the forest protection work now in hand in this province is concerned with minimizing loss by fire and, aside from lightning, it is concerned with protecting a resource from acts of carelessness by the owners. The people, as the owners of the forest resource, must, if possible, be brought to a realization that this ownership is a trust. They should look on the resource as one to be used conservatively and to be handed on to their children unimpaired or improved. It is the little acts of carelessness that usually count in connection with protection work. These are nearly always the origin of fires, both large and small, and it is only too evident that the solution of the protection problem is largely in the people's hands.



Junction of the Wabiskaw and Chipewyan rivers

The broad problem of co-operation within the province has been indicated but there remains another serious matter of co-operation that must soon be arranged. This problem cannot be viewed or classified as one which would be mutually beneficial to all concerned, at least not directly. Nationally, the solution is one of great importance but, provincially, the benefits may not be so readily apparent. The solution demands a broad view and a definite undertaking to shoulder provincial responsibilities when such are of vital concern to other provinces.

The enormous loss and expense incurred through the spread of outside fires into this province has been referred to previously in this report. It must be emphasized that the occurrence of 1936 is one of many which have been experienced. With such conditions being a fairly regular event it is unquestionably apparent that the time has arrived to view forest protection from a national angle in addition to a provincial one. It must be evident that it is not good for the dominion if an advance in one province is nullified by lack of action in another. This matter has been referred to in previous reports. It demands courageous and unselfish action.

Forest Administration

Provincial Forest Reserves.—This section of the Report deals with timber disposal from the forest reserves. A review of the statement "Summary of Timber Operations on Provincial Lands" will indicate a considerable increase in sawn lumber and a decrease in practically all other forms of forest products in so far as forest reserves are concerned. It is hoped that those areas held under timber berth, and which were severely damaged by fire, will be logged off to the end that reasonable salvage of the damaged timber may result.

TIMBER CUT UNDER PERMIT, ALBERTA FOREST RESERVES—FISCAL YEAR 1936-37

	Cooking Lake	Cypress Hills	Crowsnest-Bow River	Clearwater	Brazeau-Athabaska	Totals
Number of permits	4	302	382	23	53	764
Fuelwood, dry, cords	4	1,070	5,052	50	222	6,398
Fuelwood, green, cords	....	40	35	.....	.....	75
Mine timber, dry (lineal feet)	....	.....	625,908	76,000	9,624	711,532
Mine timber, green (lineal feet)	....	.....	29,980	27,466	.....	57,446
Lagging, cords	....	.....	.....	.....	.....	.....
Lagging (lineal feet)	....	.....	177,000	26,000	.....	203,000
Fence posts	500	730	5,945	.....	214	7,389
Sawlogs (Fbm.)	....	.....	247,456	4,000	.....	251,456
Round timber (pieces)	140	24,947	18,226	144	338	43,795
Round timber (lineal feet)	....	.....	27,841	2,380	3,869	34,090
Fence droppers (pieces)	....	320	1,600	.....	.....	1,920
Fence droppers, cords	....	1	.....	.....	.....	1
Telephone poles (pieces)	....	.....	100	.....	.....	100
Telephone poles (lineal feet)	....	.....	4,055	.....	.....	4,055
Railway ties, green (pieces)	....	.....	338	.....	.....	338

Provincial Lands.—The administration of the timber resources on all provincial crown lands was continued in the same manner as during the previous year.

A considerable increase in demand for Alberta lumber from the middle western United States and Ontario was evident during the year and was the major factor in the securing of very much better prices and in encouraging a noticeable increase in production. The total manufacture of sawn lumber from timber on provincial lands showed an increase of over 17 per cent above the figures for the preceding year, whilst prevailing prices for Alberta lumber averaged approximately 20 per cent higher at the close of the fiscal year under review than at its commencement. Other timber products did not, however, share in the improved condition of the lumber market, practically all other products showing a reduction in quantities manufactured.

The manufacture of railway ties, a very important branch of the timber industry in Alberta, fell off by nearly 15 per cent from the high level of the previous year. This is accounted for partly by a reduction in contracts awarded by the railway companies after three years of comparatively heavy purchases, and partly by the fact that a considerable number of ties cut in excess of contract requirements during the preceding year were utilized in filling contracts during this year. Contract prices on railway ties remained unchanged from the previous year.

The period covering reduction in dues on lumber cut from timber berths in the province between October 1st, 1933 and September 30th, 1934 and extended to June 30th, 1936 was again extended by order in council to all such material cut or to be cut prior to September 30th, 1937. These reductions apply to lumber alone and it is perhaps significant that this is the only class of material showing increased production during the year. In any case there is no doubt that these reductions have had a decidedly beneficial effect on lumber production and on employment in the industry.

The tendency towards curtailed operations on the larger berths and an increase in the number of small operations which has been evident for several years is again very noticeable. Production from licensed timber berths again this year shows a considerable falling off in all classes of material, whilst the number of permit berths and the quantities of practically all classes of material produced therefrom show substantial increases. Owing, however, to the fact that the regulation under which special permits to cut timber from isolated tracts not exceeding 160 acres in area was suspended for some seven weeks in the late fall when the demand for timber is heaviest, there was a decrease in the number of such permits granted. Only 190 were issued in 1936-37 as compared with 261 in the previous year.

The arrangement between this Department and the Bureau of Relief and Public Welfare, under which permits authorizing the cutting of railway ties, telephone poles and various classes of material for the Department of Public Works are issued on behalf of parties who would otherwise be dependent on relief, was continued with satisfactory results.

An act to amend the Provincial Lands Act (Cap. 76, 1937) passed by the legislature amongst other amendments makes certain enactments affecting the administration of timber resources. Amongst these are certain changes which are designed to authorize the making of new regulations governing the disposal of the right to cut timber on areas greater than can be dealt with under Section 28 of the Timber Regulations, i.e. greater than the maximum area which may be classed as a timber permit berth.

The present regulations covering disposal of licensed timber berths have been suspended for over two years and although the demand for larger tracts of timber has been at a very low ebb since 1930 it is thought the improvement in demand and prices for lumber may, if sustained, lead to a demand for larger stands of timber.

Other changes in the act cover collection by this Department of taxes under the provisions of the Timbered Areas Tax Act, the administration of which, including the collection of considerable arrears, was transferred from the Department of Municipal Affairs to the Department of Lands and Mines as at January 31st, 1937.

Another quite important amendment provides that on licensed timber berths, granted prior to the transfer of the natural resources, operations must begin not later than December 31st, 1939, failing which such berths will become subject to cancellation.

In last year's Report reference was made to the very considerable quantities of timber cut free of dues in the province. Although for several years the number of new homesteads taken up annually has been steadily and rapidly falling, only a slight decrease is noted in the number of applications by homestead settlers for free permits. During the year under review no less than 7,420,098 Fbm. of lumber, 140,983 lineal feet of building logs, 312,930 fence posts, 1,402,664 fence rails, 273,727 roof poles and 6,249 cords of fuel were covered by such permits. In addition to this 1,817 telephone poles were cut free of dues for the purpose of placing in good order telephone lines taken over from the government by rural mutual companies, also 913,716 Fbm. of lumber and 87,229 lineal feet of building logs were cut free of dues for the construction of educational, religious and charitable institutions, agricultural and society buildings and rural community halls. It is estimated that material cut under free permits during the year is representative of dues which would have amounted to over $70,000 had this material been subject to the regulation rates.

Whilst the question of abolishing the free allowance of timber for homestead settlers will have to be faced eventually as it already has been in other western provinces, a step in this direction might be taken by reducing the period of seven years during which a settler may be granted this free allowance to say three. It seems fairly obvious that the greatest need for such assistance is during the first years of settlement and the restriction suggested would tend to reduce the excessive cut being made under this privilege without inflicting hardship.

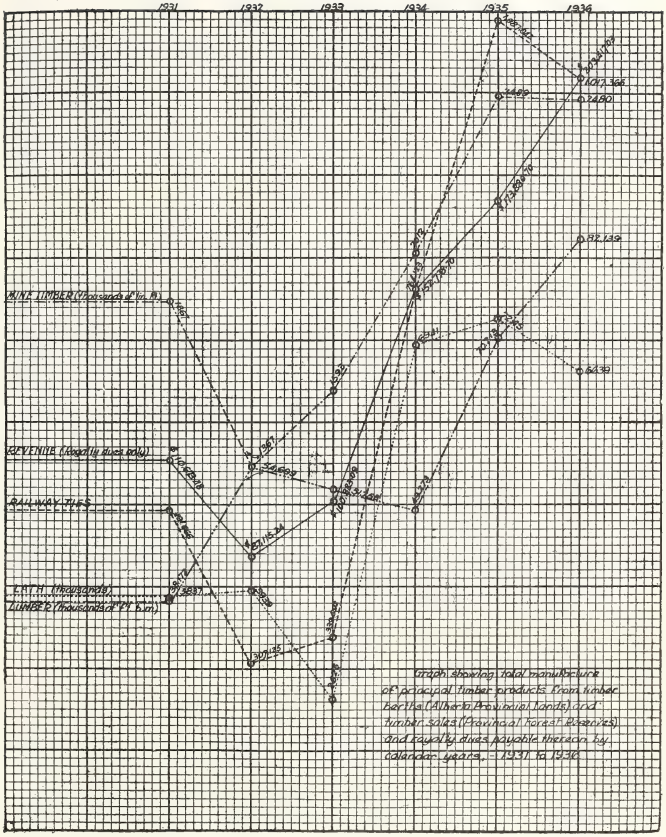
The very heavy demands of inspection and supervision of timber operations made upon the timber inspectors in recent years were maintained, there being a slight increase in the number of inspections and investigations requested and made over the corresponding number for the previous year, which was by far the heaviest up to that time. Inspection reports submitted reached a total of 2,811 in comparison with 2,796 for 1935-36.

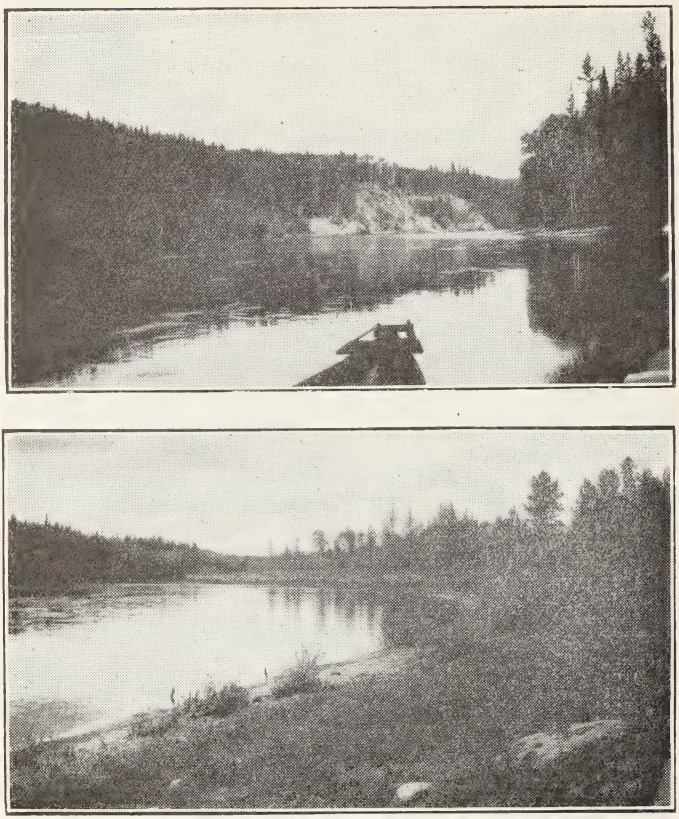
The following table summarizes the timber business transacted at Head Office in respect to the former Edmonton Agency District and to the land agencies of Calgary, Peace River and Lethbridge:

	Head Office, Edmonton District	Calgary Agency	Peace River Agency	Lethbridge Agency	Totals
(a) MANUFACTURES FROM TIMBER BERTHS HELD UNDER YEARLY LICENSE:					
Number of active operations	38	12	.....	.....	50
Lumber in feet board measure	33,021,285	1,541,661	.....	.....	34,562,946
Railway ties	44,906	.....	.....	.....	44,906
Round timber (including mine timber) in lineal feet	28,925	.....	.....	.....	28,925
Lath	3,637,815	.....	.....	.....	3,637,815
Shingles	59,750	.....	.....	.....	59,750
Cordwood, cords	577	.....	.....	.....	577
(b) MANUFACTURES FROM TIMBER BERTHS HELD UNDER YEARLY PERMIT:					
Number of active operations	233	14	.....	.....	247
Lumber in feet board measure	41,294,254	1,243,077	.....	.....	42,537,331
Railway ties	914,259	36,818	.....	.....	951,077
Round timber (including mine timber) in lineal feet	245,748	.....	.....	.....	245,748
Lath	3,001,631	.....	.....	.....	3,001,631
Shingles	440,250	.....	.....	.....	440,250
Cordwood, cords	1,298	15	.....	.....	1,313
(c) TIMBER PERMITS ISSUED AUTHORIZING THE CUTTING OF MATERIAL SHOWN HEREUNDER:					
Number of permits issued	1,549	224	745	26	2,544
Lumber in feet, board measure	10,927,405	1,345,414	4,697,626	.....	16,970,445
Railway ties	122,232	37,564	4,000	.....	163,796
Piling, lineal feet	9,344	.....	4,454	.....	13,798
Mining timber, lineal feet	366,562	92,400	.....	5,000	463,962
Telegraph and telephone poles	5,169	150	500	.....	5,819
Building logs, lineal feet	115,180	20,750	148,213	.....	284,143
Fence rails	571,404	22,125	706,565	.....	1,300,094
Fence posts	177,839	7,480	166,570	300	352,189
Roof poles	133,720	2,430	141,052	.....	277,202
Shingles	387,000	.....	62,000	.....	449,000
Shingles bolts, cords	20	147	253½	.....	420½
Lagging, cords	380,000	.....	.....	.....	380,000
Fuel wood, cords	7,496	1,655	1,558	221	10,930
Lath	168,000	.....	.....	.....	168,000
Boxwood, cords	10	.....	.....	.....	10
Guard rails	5,000	.....	.....	.....	5,000
Fence droppers	1,200	.....	.....	.....	1,200
(d) SEIZURES MADE IN RESPECT TO ILLEGAL CUTTING, NON-PAYMENT OF DUES, ETC., COVERING MATERIAL SHOWN HEREUNDER:					
Number of seizures made	152	10	27	.....	189
Lumber in feet board measure	1,353,256	219,850	475,344	.....	2,048,450
Logs in lineal feet	32,890	1,068	5,874	.....	39,832
Railway ties	6,485	1,450	.....	.....	7,935
Telegraph and telephone poles	2,356	.....	.....	.....	2,356
Fence rails	1,250	180	.....	.....	1,430
Fence posts	4,125	.....	.....	.....	4,125
Roof poles	1,810	10	.....	.....	1,820
Fuel wood, cords	147	13	38	.....	198
Mine timber, lineal feet	42,165	8,560	.....	.....	50,725
Shingles	79,500	.....	15,000	.....	94,500
Shingle bolts, cords	17	.....	.....	.....	17

SUMMARY OF TIMBER OPERATIONS ON PROVINCIAL LANDS, 1936-37

	Licensed Timber Berths	Permit Timber Berths	Forest Reserve Timber Sales	Provincial Lands Timber Permits	Forest Reserve Timber Permits	Totals
No. of active operations	50	247	19	2,544	764	3,624
Lumber (feet, board measure)	34,562,946	42,537,331	4,830,824	16,970,445	251,456	99,153,002
Railway ties	44,906	951,077	21,383	163,796	.....	1,181,162
Piling (lineal feet)	.....	.....	.....	13,798	.....	13,798
Mine timber (lineal feet)	28,925	245,748	1,520,260	463,962	973,668	3,232,563
Lath	3,637,815	3,001,631	.....	168,000	.....	6,807,446
Telegraph and telephone poles	.....	.....	.....	5,819	315	6,134
Building logs (lineal feet)	.....	.....	.....	284,143	734,810	1,018,953
Fence rails	.....	.....	.....	1,305,094	.....	1,305,094
Roof poles	.....	.....	.....	277,202	.....	277,202
Fence posts	.....	.....	.....	353,389	9,310	362,699
Shingles	59,750	440,250	.....	449,000	.....	949,000
Shingle bolts (cords)	.....	.....	.....	420½	.....	420½
Cordwood (cords)	577	1,313	.....	10,940	6,473	19,303
Number of inspection reports submitted by timber inspectors	.....	.....	.....	.....	.....	2,811
Number of seizures made	.....	.....	.....	.....	.....	189


1931
1932
1933
1934
1935
1936
MINE TIMBER (Thousands of Cu. ft.)
REVENUE (Royalty dues only)
RAILWAY TIES
LATH (Thousands)
LUMBER (Thousands of Fbm.)
Graph showing total manufacture of principal timber products from timber berths (Alberta Provincial lands) and timber sales (Provincial Forest Reserves) and royalty dues payable thereon by calendar years, 1931 to 1936.



Timber on the Wabiskaw River

Grazing

Under the regulations for provincial forest reserves grazing is dealt with in addition to other uses and control of the grazing use is provided in the interest of forest management amongst the multiple uses of lands found to exist within the reserves.

The authorization of grazing use is by way of annual permit, payment for which is on the basis of number of stock grazed and the period of time the stock is on forest reserve range. Flexibility which is so desirable where diversified use of lands exists is assured under the present permit system and reasonable assurance of continuity of use for the stockmen is given by the opportunity to establish rights for renewal permits.

In practically all instances the grazing range is being maintained in a satisfactory condition. The control exercised allows for conservative utilization, a feature that is important in years of drought.

Certain reductions in the authorized carrying capacity of range were necessary due to continued drought. A considerable reduction in the total number of

permits issued and in the number of cattle grazed is shown by the grazing statement. The carrying capacity of home ranges, being reduced by drought, has probably been followed by a reduction in herds which, in turn, is reflected in the grazing statement.

GRAZING STATEMENT—ALBERTA FOREST SERVICE, 1936-37

Forest	No. of Permits	No. of Horses	No. of Cattle	No. of Sheep
Cypress Hills	69	295	2,733	.....
Crowsnest	198	780	13,038	3,843
Bow River	72	596	7,248	1,600
Clearwater	45	225	319	.....
Brazeau	102	261	69	.....
Athabaska	11	284	.....	.....
TOTALS	497	2,441	23,407	5,443

COMPARATIVE STATEMENT, GRAZING—ALBERTA FOREST SERVICE

Grazing year—	1931	1932	1933	1934	1935	1936	Totals	Average
Number of permits	456	606	493	517	533	497	3,102	517
Number of cattle	15,041	20,086	20,230	22,557	25,097	23,407	126,418	21,070
Number of horses	3,417	3,377	3,185	2,541	2,207	2,441	17,168	2,861
Number of sheep	4,379	7,465	6,705	3,078	4,114	5,443	31,184	5,197

Improvements

The maintenance of completed projects for the last several years has been principally the work done on improvements. In the interest of fire protection and administration a large investment was made by the dominion government on improvements such as trails, telephone lines, buildings, roads, look-out cabins and towers and other miscellaneous works. The aim has been to keep these works up to a good usable standard and, where a real necessity existed, to add to the projects by new construction in order to round out partially developed units or districts but there are large forest districts that are almost entirely unprepared for anything but the most elementary form of forest protection and a number of these districts is now producing the majority of manufactured forest products.

Forest protection to be properly arranged requires that an experienced staff be employed, that fire-fighting equipment be adequate, that detection services and lines of communication be established. So far as improvements are concerned there is a glaring lack of detection and communication.

The absence of these facilities in districts that are immediately important to the timber industry should be corrected with as little delay as possible. The expenditure involved will be more than offset by the reduction in timber loss and fire-fighting costs and the industry will be placed on a more secure footing with regard to raw material.

Relying on the protective staff for all maintenance work, as has been the case during the last few years, it will be evident that the amount of maintenance work accomplished will depend largely on the fire season that develops. During the 1936 season it was not possible to devote a large portion of time to maintenance work in the foothill and mountain country due to the intensity of the fire hazard and to the presence of fires in many districts.

In northern Alberta the field staff was able to accomplish considerable work and, in particular, in the Slave Lake and Fort McMurray divisions work of an emergency nature was dealt with.

In the summer of 1935 at the village of Slave Lake exceptionally high water occurred which inundated a large part of the village, the highway and railroad. It was decided that the then site of the village on the east end of the lake at the outlet was unsafe for occupation and a new site was chosen adjacent to the railway station.

During the winter arrangements were made for moving all divisional headquarters' forestry buildings to the new village and, with this accomplished, the necessary work of constructing foundations, setting buildings, repairing damage caused by moving and other miscellaneous work was done largely by the seasonal staff as other work permitted. This work was completed with the exception of painting.

During the spring break-up on the Athabaska River ice conditions below Fort McMurray caused a flood which accompanied by the tremendous cakes of ice wrecked everything that it reached. The forestry headquarters' buildings for the Fort McMurray division were located along the south bank of the Snye and were completely wrecked. A considerable loss of equipment was natural though the staff through strenuous efforts, and facing grave danger, successfully moved a considerable quantity during the flood. Boats, canoes and engines were saved and later a careful search, after the flood receded, resulted in recovery of a number of tools.

Through negotiation with the Department of Municipal Affairs a lot was secured on which a new headquarters has been erected. The material from the damaged buildings was salvaged and augmented by new material. The office was reconstructed and a new combined workshop-storehouse, boatshed and woodshed were built. This work was almost entirely done by the seasonal staff as other work permitted. Naturally under such circumstances progress was interrupted from time to time but at the end of the season the buildings were finished and a very satisfactory unit completed. In addition, the speeder house at Waterways had been washed away. This was replaced by one built from salvaged material.

IMPROVEMENT STATEMENT

NEW CONSTRUCTION PROJECTS:

Forest	Houses	Garages, Sheds, etc.	Fences	Fields (breaking in acres)	Water Supply Systems	Barns and Stables	Telephones (miles)	Corrals	Bridges	Look-out Towers	Trails (Miles)	Cabins	Fireguard Roads (Miles)	Tourist Stoves	Miscellaneous
Cypress Hills	....	2	....	....	....	....	....	....	....	....	....	....	....	....	3
Crowsnest	....	2	....	....	....	1	....	....	....	....	....	1	3½	....	1
Bow River	1	4	1	....	1	....	....	1	....	....	4½	....	....	....	....
Clearwater	....	2	....	....	....	1	....	....	....	....	....	....	....	....	1
Brazeau	....	....	....	....	1	....	1	....	....	....	....	....	....	....	....
Athabaska	1	1	1	....	....	....	1	....	....	....	....	....	....	....	1
TOTALS	2	11	2	....	2	2	2	1	....	....	4½	1	3½	....	6

MAINTENANCE PROJECTS:

Forest	Houses	Cabins	Barns and Stables	Telephones (Miles)	Trails (Miles)	Roads (Miles)	Fences	Corrals	Water Supply Systems	Garages, Sheds, etc.	Look-out Towers and Cabins	Grounds	Hay Meadows & Pastures	Ferries	Miscellaneous
Cypress Hills	1	1	1	1	....	42	....	....	1	2	....	1	....	....	2
Crowsnest	10	2	5	9	243½	107	16	2	....	8	3	7	2	....	5
Bow River	5	6	4	12	788¼	94½	16	5	1	2	5	13	4	....	5
Clearwater	3	10	1	8	710¼	....	6	1	....	3	3	....	....	1	2
Brazeau	6	5	2	8	282½	....	11	1	....	2	4	6	....	....	....
Athabaska	1	13	1	4	459 7/10	....	8	....	2	2	1	1	....	....	2
TOTALS	26	37	14	48	2484 1/5	243½	57	9	4	19	16	28	6	1	16

IMPROVEMENTS—STATEMENT OF MAN-DAYS WORKED

NEW CONSTRUCTION PROJECTS:

Forest	Houses	Garages, Sheds, etc.	Fences	Fields (breaking)	Water Supplies	Telephones	Corrals	Barns and Stables	Bridges	Look-out Towers	Trails	Cabins	Fireguard Roads	Tourist Stoves	Miscellaneous
Cypress Hills	....	11½	1½	....	....	....	....	....	....	....	....	....	....	....	7½
Crowsnest	....	12	....	....	....	....	....	26½	....	....	....	1	3½	....	10½
Bow River	226½	39	11	....	14½	....	9½	....	....	....	10	....	....	....	....
Clearwater	....	16	....	....	....	....	....	43	....	....	....	....	....	....	3
Brazeau	....	....	....	....	93	47	....	....	....	....	....	....	....	....	....
Athabaska	41½	25	12	....	....	1	....	....	....	....	....	....	....	....	44½
TOTALS	268	103½	24½	...	107½	48	9½	69½	....	....	10	1	3½	....	65½

MAINTENANCE PROJECTS:

Forest	Houses	Cabins	Barns and Stables	Telephones	Trails	Roads	Fences	Corrals	Water Supplies	Garages, Sheds, Etc.	Look-out Towers and Cabins	Grounds	Hay Meadows & Pastures	Ferries	Miscellaneous
Cypress Hills	10	8	3½	18	....	8	....	....	1	5½	....	20	....	....	6
Crowsnest	113	½	7	157½	78½	80½	91½	1	....	7	6½	21	2½	....	18½
Bow River	85	40	9	230	335	180	165	23½	14	17½	½	34	28	....	7½
Clearwater	19	103	....	119	340	....	72	2	....	1	....	....	....	10	15
Brazeau	33½	28	4	152	437	....	36	3	....	5½	8	83	....	....	....
Athabaska	1	64	3	39½	296½	49	27½	....	15	1	1	4	....	....	14
TOTALS	261½	243½	26½	716	1,487	317½	392	29½	30	37½	16	162	30½	10	61

Nursery and Tree Distribution

Nursery.—A considerable amount of transplanting and seeding was effected at Oliver in the fall of 1936 and also at the subsidiary nurseries at Ponoka, Fort Saskatchewan and Lethbridge. A lot of damage was caused, however, by the flooding of transparent beds at Oliver and further transplanting was necessary in the spring to make up for the mortalities in the fall transplanting.

The following is a statement of the seeding done at the Oliver nursery in the fall of 1936 and the spring of 1937:

173	lineal feet	Lodgepole pine (*Pinus murrayana*)
70	" "	Siberian larch (*Larix sibirica*)
21	" "	Douglas fir (*Pseudotsuga mucronata*)
281	" "	White spruce (*Picea glauca*)
12	" "	Cedar (*Thuja occidentalis*)
8	" "	Balsam fir (*Abies balsamea*)
42	ounces	White elm (*Ulmus americana*)
24	"	Green ash (*Fraxinus pennsylvanica*)

The last two named were planted in rows and not in the seed-beds. The seed-beds are four feet wide, one lineal foot equaling four square feet. Most of the Green ash seed planted in the fall of 1936 was blown out by a violent windstorm.

In the fall of 1936 and the spring of 1937 the following stock was removed from the seed-beds to the transplant beds at Oliver:

8,100	Lodgepole pine (*Pinus murrayana*)
800	Ladoga pine (*Pinus sylvestris—Bugnet*)
2,400	Scotch pine (*Pinus sylvestris*)
115,000	White spruce (*Picea glauca*)

Of the White spruce, which comprised the bulk of the stock transplanted, 110,000 were set out into the transplant beds. About 25% of these were planted early enough to enable them with the May and early June rains to take hold well but the remainder encountered a long period of dry weather which began just after they were planted and which was very hard on the plantation.

A period of extremely warm weather in the late winter was experienced at Oliver. Snow melted and in most areas the ground was left bare. Cold weather returned and did much damage to the seedlings and transplants which were exposed to it without protection. As stated previously damage was extensive, especially in the younger plantations and further transplanting was necessary in the spring to make up for the loss.

At the Fort Saskatchewan nursery 56,000 White spruce and 5,000 Lodgepole pine were planted.

At the Lethbridge nursery the growing of White sphuce transplants has not been very successful. It is thought that the extent to which the trees there are exposed to sunlight has had an adverse effect, and it appears that more shelter will be required before the White spruce will do well. Lodgepole pine seedlings for planting in this nursery were obtained from the Cypress Hills forest.

The following is a list of the seedlings at Oliver which should be transplanted next fall or spring:

White spruce (*Picea glauca*)	190,500
Scotch pine (*Pinus sylvestris*)	9,000
Common spruce (*Picea tianschanica*)	4,500
Colorado blue spruce (*Picea pungens*)	6,000
Red pine (*Pinus resinosa*)	80
Douglas fir (*Pseudotsuga mucronata*)	30

Tree Distribution.—More trees were given out from Oliver in 1937 than at any time since the first year the nursery was operated. The species and quantities were as follows:

Transplants:		
Siberian larch (*Larix sibirica*)	1,905	
Lodgepole pine (*Pinus murrayana*)	54,800	
Scotch pine (*Pinus sylvestris*)	30,110	
White spruce (*Picea glauca*)	5,970	
Green ash (*Fraxinus pennsylvanica*)	9,005	
White elm (*Ulmus americana*)	3,575	
Bur oak (*Quercus macrocarpa*)	8,100	
Red oak (*Quercus rubra*)	2,210	
Jack pine (*Pinus banksiana*)	1,315	
		116,990
Cuttings:		
Russian poplar (*Populus balsamifera*)	16,180	
Laurel leaf willow (*Salix pentandra*)	12,600	
Golden willow (*Salix vitellina*)	2,310	
		31,090
Ornamental and Exotic Species:		
Lilacs (*Syringa japonica*)	71	
Mountain ash (*Pyrus americana*)	65	
Honeysuckle (*Lonicera ciliosa*)	138	
Ginnalian maple (*Acer ginnala*)	75	
Native hawthorn (*Crataegus*)	125	
Catalpa (*Catalpa bignonioides*)	20	
Silver maple (*Acer saccharinum*)	20	
Plum (*Prunus nigra*)	395	
Cotoneaster (*Acutifolia*)	317	
Buckthorn (*Rhamnus*)	10	
White ash (*Fraxinus americana*)	100	
Crab-apple (*Malus baccata*)	13	
Manitoba maple (*Acer Negundo*)	279	
Flowering almond (*Prunus triloba*)	8	
Pygmy caragana (*Caragana pygmaea*)	12	
		1,648
TOTAL		149,728
From Ponoka Nursery:		
Scotch pine (*Pinus sylvestris*)	2,000	
Lodgepole pine (*Pinus murrayana*)	6,400	
		8,400

A total of 723 applications was approved, of which 689 were for individuals, 21 for schools and 13 for institutions. Five applicants did not take delivery of their trees at the railway stations and in each instance as in previous years the railway company was instructed to give the trees to anyone who would pay the express charges.

The following seedlings and transplants will be suitable for shipping next year:

Oliver Nursery:	
Lodgepole pine (*Pinus murrayana*)	25,000
White spruce (*Picea glauca*)	2,500
Colorado blue spruce (*Picea pungens*)	1,000
Green ash (*Fraxinus pennsylvanica*)	9,800
White elm (*Ulmus americana*)	9,000
Nordman fir (*Abies nordmanniana*)	6,000
Bur oak (*Quercus macrocarpa*)	5,000
Red oak (*Quercus rubra*)	2,000
Mountain ash (*Pyrus americana*)	950
Ladoga pine (*Bugnet—Pinus sylvestris*)	150
Birch (*Betula alba*)	200
Scotch pine (*Pinus sylvestris*)	1,400
Ponoka Nursery:	
Scotch pine (*Pinus sylvestris*)	16,150
Lodgepole pine (*Pinus murrayana*)	7,555

There are also 5,000 Lodgepole pine at the Fort Saskatchewan nursery which, if required, could be distributed in 1938 but it is suggested that they be left until 1939 as these were only transplanted recently and will probably not show much growth this year.

The shipping of trees took a full month in 1937, the first shipment going on April 22nd and the last one on May 22nd. This is too long a time to permit the trees to be sent out at their best and as already pointed out more space is

essential if speed is to be increased. A roughly built structure covering a wide area, say 35 ft.×35 ft., would add immensely to the speed and convenience of parcelling for it becomes more important each year to get the trees out quickly owing to the increasing varieties of species to be shipped.

Game

In July 1936 the Game Branch was transferred from the Department of Agriculture to the Department of Lands and Mines and later the Assistant Director of Forestry was appointed Game Commissioner. Forest protection work was continued by this official and game administration carried on at the same time.

It was recognized that the field staff of the Forest Service was eminently suited to carry on field work of the Game Branch and that it would be possible to effect a great improvement in the field work of this branch if the Forestry staff, slightly augmented and employed for longer periods, was made responsible for game administration as well as forest protection. It was evident to those conversant with the requirements of both divisions of the Department that the work is closely related, that it begged consolidation which, if done, would produce good results for the Game Branch without unduly affecting results of the Forestry. To be workable, that is to avoid divided authority, it required that a Forestry official be in charge of the Game Branch. It was known that the arrangement would result in a large amount of extra work for the official appointed to the dual responsibility, but it was felt that with the indication of extra office assistance it could be done.

While the matter of a report on Game administration is properly one for the Game Branch, it must be recorded here that the scheme was working out satisfactorily so far as the Forest Service was concerned and the entire staff was keenly interested in bringing about an improvement.

In order that the situation might be dealt with more intensively than had been possible heretofore, arrangements were made by the Game Commissioner to extend the normal period of employment for forest rangers. In a large number of cases the rangers' employment period was extended to beyond the closing date of the big game hunting season. In addition, provision was made to employ a number of these officials on game administration through the winter period. While the latter arrangement was cancelled early in January, 1937, excepting in the case of four men, it resulted in a total of 3,121 man-days being used on game work.

Publicity

There is very little, if any, improvement which can be recorded respecting publicity in the interests of fire prevention. Aside from the usual press notices when large and destructive fires occur, the reference to the forest problem is spasmodic. The problem of forest protection must to a large degree be solved by an enlightened public, one that understands the importance of the forest resource, the need for fire prevention and of regulated use of the forest. The opportunity to accomplish this through the press and radio goes largely unused.

MILEAGE TRAVELLED BY EMPLOYEES OF THE ALBERTA FOREST SERVICE

FISCAL YEAR 1936-37

Divisions	Foot	Saddle	Driving	Speeder	Auto	Canoe	Rowboat	Motorboat	Plane	Railway	Steamer	Raft	Dogteam	Tractor	Total
Northern Alberta Forest District	28,455	46,058	15,353	15,991	94,441	6,240	89	4,452	383	12,913	1,141	2	3,441	.....	228,959
Crowsnest-Bow River Forest	5,591	46,586	3,119	.....	61,364	.....	8	.....	350	1,011	.....	.....	401	121	118,551
Clearwater Forest	3,934	17,033	.....	2,331	12,004	.....	.....	.....	.....	201	.....	.....	.....	.....	35,503
Brazeau-Athabaska Forest	3,335	17,412	.....	5,630	1,434	.....	.....	.....	.....	1,882	.....	.....	.....	.....	29,693
TOTALS	41,315	127,089	18,472	23,952	169,243	6,240	97	4,452	733	16,007	1,141	2	3,842	121	412,706

Accounting Division

REPORT OF THE ACCOUNTANT, I. N. McKINNON

A surplus of $996,719.59 on income account was shown for the period ending May 31, 1937, an increase of $348,788.38 over the previous year. Included in this year's figures, however, is a surplus of $83,389.84 on operations of the Game Branch, transferred to this Department in June, 1936.

Revenue for the year was $1,646,496.09, an increase of $494,020.31, which includes Game Branch revenue of $117,989.84. Every branch of the Department showed an improvement over the previous year, the most notable being an increase of $209,763.83 in mining lands and $102,176.29 in school lands. Particulars of revenue by branches will be found in Statement "B".

Expenditure amounted to $649,776.50, an increase of $145,231.93. Fire-fighting expenses were up $118,696.48 and were responsible for the increase together with the additional expenditure of the Game Branch and the Toronto Coal Marketing Office, both transferred to the Department during the year. Game Branch expenditure was $34,599.50 and that of the Coal Marketing Office, $4,364.52.

Total cash received from all sources amounted to $1,807,855.35, as against $1,310,890.21 for the previous year. Particulars are given in Statement "A".

INDEX TO STATEMENTS

A.—Statement of Cash Receipts from all sources
B.—Statement of Income Revenue by Branches
C.—Statement of Cash Receipts, School Lands Branch
D.—School Lands Trust Fund Balance Sheet
E.—Statement of Alberta School Lands Sales Revenue Account
F.—Statement of Collections on Tax Recovery Lands
G.—Statement of Homestead Entries Granted

STATEMENT A.

STATEMENT OF CASH RECEIPTS FROM ALL SOURCES
From April 1, 1936 to March 31, 1937

	Gross Receipts	Refunds	Net Revenue
INCOME ACCOUNT:			
Lands and Grazing Branch:			
Cancellation fees	$ 1,308.00	$ 8.00	$ 1,300.00
Casual	4,965.62	67.20	4,898.42
Cultivation fees, rentals, etc.	2,597.42	291.98	2,305.44
Filing authority fees	1,060.00	.....	1,060.00
Fur farm fees and rentals	441.89	50.00	391.89
General sales interest	3,543.40	.....	3,543.40
Grazing permits, fees, rentals, etc.	74,064.48	397.65	73,666.83
Hay permits, fees, dues, etc.	3,394.90	114.50	3,280.40
Homestead fees	14,320.00	40.00	14,280.00
Improvement collection fees	5,307.46	101.40	5,206.06
Surface rentals	1,677.95	.....	1,677.95
Timber Branch:			
Casual	2,368.43	2.04	2,366.39
Timber permits, fees, rentals, etc.	331,249.22	2,579.08	328,670.14
Mining Lands Branch:			
Casual	2,453.09	.....	2,453.09
Coal fees, rentals, etc.	116,444.60	306.62	116,137.98
Coal Mines Act sundry revenue	4,663.50	20.00	4,643.50
Coal royalties	175,263.35	49.02	175,214.33
Petroleum and Natural Gas:			
Fees, rentals, etc.	350,687.85	2,561.56	348,126.29
Royalties	108,321.19	.....	108,321.19
Drilling permits	165.00	.....	165.00
Quarrying fees, rentals, etc.	2,206.08	20.00	2,186.08

Fisheries Branch:			
Angling permits	9,614.53	.....	9,614.53
Boat licenses	150.00	.....	150.00
Casual	1,495.40	.....	1,495.40
Fishing licenses	13,080.00	22.00	13,058.00
Game Branch:			
Game licenses	59,527.12	3,427.82	56,099.30
Fur tax	62,722.68	1,781.57	60,941.11
Sale of fur	595.40	.....	595.40
Casual	353.53	.....	353.53
School Lands Branch:			
Interest on sales	66,239.82	.....	66,239.82
Miscellaneous	250,066.76	22,543.10	227,523.66
Miscellaneous:			
Casual	5,364.97	61.50	5,303.47
Reimbursement of salaries and expenses	81.83	.....	81.83
Tax recovery office fees	380.80	5.00	375.80
Services and supplies	4,769.86	.....	4,769.86
TOTAL INCOME ACCOUNT	$1,680,946.13	$ 34,450.04	$1,646,496.09
CAPITAL ACCOUNT:			
Land sales principal	10,972.07	104.84	10,867.23
TOTAL INCOME AND CAPITAL ACCOUNTS	$1,691,918.20	$ 34,554.88	$1,657,363.32
UNAPPLIED RECEIPTS CARRIED FORWARD: (Subject to Refund)			
Improvements	$ 14,367.54	$ 8,152.88	$ 6,214.66
Suspense	34,188.72	.....	34,188.72
School lands cultivation crop shares	1,000.00	.....	1,000.00
Land patents cultivation crop shares	400.00	.....	400.00
Grazing permits, fees, rentals, etc.	10,000.00	.....	10,000.00
	$1,751,874.46	$ 42,707.76	$1,709,166.70
TRUST ACCOUNT:			
School lands trust fund	55,799.89		
Homesteaders' trust monies	181.00		
TOTAL CASH RECEIPTS	$1,807,855.35		

STATEMENT B.

STATEMENT OF INCOME REVENUE BY BRANCHES FOR FISCAL YEARS ENDING
March 31, 1936 and March 31, 1937

	Fiscal year ending March 31, 1936	Fiscal year ending March 31,1937
Lands and Grazing Branch	$ 80,910.52	$ 111,610.39
Timber Branch	303,964.31	331,036.53
Mining Lands Branch	547,483.63	757,247.46
Fisheries Branch	21,418.16	24,317.93
Game Branch	.....	117,989.34
School Lands Branch	191,587.19	293,763.48
Miscellaneous	7,111.97	10,530.96
	$1,152,475.78	$1,646,496.09

STATEMENT C.

SCHOOL LANDS BRANCH
STATEMENT OF CASH RECEIPTS
April 1, 1936 to March 31, 1937

	Receipts	Refunds	Net Revenue
INCOME ACCOUNT:			
Sales: interest	$ 66,239.82	.....	$ 66,239.82
Cultivation fees, rentals, etc.	98,826.95	22,026.30	76,800.65
Miscellaneous leases	382.00	.....	382.00
Timber permits, fees, dues, etc.	19,402.84	180.79	19,222.05
Grazing fees, rentals, etc.	15,271.78	84.81	15,186.97
Hay fees, dues, etc.	1,131.48	42.75	1,088.73
Coal fees, rentals, etc.	5,259.63	45.00	5,214.63
Coal mining royalties	18,596.00	.....	18,596.00
Petroleum and natural gas: fees, rentals, etc.	89,041.70	1.50	89,040.20
Petroleum and natural gas royalties	614.09	.....	614.09
Miscellaneous	2,540.29	161.95	2,378.34
	$317,306.58	$ 22,543.10	$294,763.48
Less amount carried forward to provide for tax refunds on cultivation lease crop shares	.....	.....	1,000.00
	$317,306.58	$ 22,543.10	$293,763.48
TRUST ACCOUNT:			
School land sales principal	55,799.89	.....	55,799.89
TOTAL INCOME AND TRUST ACCOUNTS	$373,106.47	$ 22,543.10	$349,563.37

STATEMENT D.

ALBERTA SCHOOL LANDS TRUST FUND
BALANCE SHEET—MARCH 31, 1937
ASSETS

Cash in Bank and on Hand		$ 22,065.16	
Investments:			
Dominion of Canada Debentures		9,928,807.35	
Accounts Receivable:			
Undue Principal	$1,680,048.36		
Arrears Principal	1,611,286.54		
		3,291,334.90	
			$13,242,207.41

LIABILITIES

Alberta School Lands Trust Fund	$13,242,198.37	
Suspense	9.04	
		$13,242,207.41

STATEMENT E.

ALBERTA SCHOOL LANDS SALES
REVENUE ACCOUNT
FOR THE PERIOD APRIL 1, 1936 TO MARCH 31, 1937

Arrears Interest as at March 31, 1936	$1,312.166.25	
Interest charged	286,675.79	
Interest Revenue		$ 66,239.82
Interest Bonus granted		20,203.84
Interest on Cancelled Sales written off		190,172.73
Arrears Interest as at March 31, 1937		1,322,225.65
	$1,598,842.04	$1,598,842.04

STATEMENT F.

STATEMENT OF COLLECTIONS ON TAX RECOVERY LANDS
April 1, 1936 to March 31, 1937

Improvements	234.00
Cultivation Rentals, etc.	937.32
Cultivation Crop Shares	535.97
Miscellaneous Rentals	124.59
Grazing Permits	3,267.62
Grazing Rentals, etc.	1,403.11
Sales, Principal	3,288.00
Sales, Interest	18.51
Casual	5.00
	$ 9,814.12
Office Fees	375.80
	$10,189.92

STATEMENT G.

HOMESTEAD ENTRIES GRANTED
April 1, 1936 to March 31, 1937

	Homesteads	Second Homesteads	Soldier Grants	Total	Entries to Women
Edmonton Land Agency	731	75	2	808	256
Calgary Land Agency	103	14	3	120	24
Lethbridge Land Agency	1	5	...	6	1
Peace River Land Agency	461	35	2	498	198
	1,296	129	7	1,432	479

ANNUAL REPORT

OF THE

Department of Lands and Mines

OF THE

PROVINCE OF ALBERTA

FOR THE

Fiscal Year Ended March 31st

1938

PUBLISHED BY ORDER OF THE LEGISLATIVE ASSEMBLY

EDMONTON:
PRINTED BY A. SHNITKA, KING'S PRINTER
1939

To the Honourable J. C. Bowen,
Lieutenant-Governor of the Province of Alberta.

SIR:

I have the honour to submit the report of the Department of Lands and Mines for the fiscal year ended March 31st, 1938.

I have the honour to be, Sir,

Your obedient servant,

N. E. TANNER,
Minister of Lands and Mines.

Edmonton, March 7th, 1939.

TABLE OF CONTENTS

PAGE

REPORT OF THE DEPUTY MINISTER 9

THE OIL AND GAS RESOURCES CONSERVATION ACT 19

I.—PROVINCIAL LANDS ADMINISTRATION

Report of the Provincial Lands Division 34

II.—SCHOOL LANDS ADMINISTRATION

Report of the School Lands Division 37

III.—MINING LANDS ADMINISTRATION

Report of the Mining Lands Division 39

IV.—TECHNICAL DIVISION

Report of the Technical Division 45

V.—PETROLEUM AND NATURAL GAS ADMINISTRATION

Report of the Petroleum and Natural Gas Division 50

VI.—FORESTRY ADMINISTRATION

Report of the Forestry Division 62

VII.—ACCOUNTS ADMINISTRATION

Report of the Accounting Division 87

GOVERNMENT OF ALBERTA

DEPARTMENT OF LANDS AND MINES

Resulting from the transfer on October 1st, 1930 of Alberta's natural resources from federal to provincial control, the Department of Lands and Mines was on this date brought into being by the Alberta Government. The general purpose of the new Department was to be one of supervision and management of the resources in question.

Ministers of the Department, responsible at different periods for this administration, appear as follows:

Hon. R. G. Reid, appointed October 2nd, 1930,
Hon. Hugh W. Allen, appointed July 10th, 1934,
Hon. Charles C. Ross, appointed September 3rd, 1935,
Hon. N. E. Tanner, appointed January 5th, 1937.

CHIEF OFFICERS
DEPARTMENT OF LANDS AND MINES
March 31st, 1938

Honourable N. E. Tanner ..... *Minister of Lands and Mines*

John Harvie ..... *Deputy Minister of Lands and Mines*

T. C. Rankine ..... *Departmental Solicitor*

J. W. Stafford ..... *Director of Lands*

J. W. Stafford ..... *Superintendent of School Lands*

J. W. Hamilton ..... *Superintendent of Mining Lands*

T. W. Dalkin ..... *Superintendent of the Technical Division*

C. W. Dingman ..... *Director of Petroleum and Natural Gas*

T. F. Blefgen ..... *Director of Forestry*

J. A. Hutchison ..... *Assistant Director of Forestry*

F. W. Neilson ..... *Chief Timber Inspector*

I. N. McKinnon ..... *Accountant*

A. A. Millar ..... *Chief Inspector, The Coal-mines Regulation Act*

M. Gossip ..... *Agent, Calgary Land Agency*

R. Cruickshank ..... *Agent, Lethbridge Land Agency*

J. J. E. Clarke ..... *Agent, Peace River Land Agency*

J. L. Irwin ..... *Statistician*

REPORT

OF THE

Department of Lands and Mines,

1937-38

Honourable N. E. Tanner,
Minister of Lands and Mines,
Edmonton.

SIR:

I have the honour to submit the eighth Annual Report of the Department of Lands and Mines for the fiscal year ended March 31st, 1938.

Notwithstanding that the Game and Fisheries divisions were transferred in the month of May, 1937 to the Department of Agriculture, the revenue of our Department continued to increase, resulting in a surplus of $1,084,591.78 in comparison with the previous year's profit of $996,719.59. We anticipate that our profit in the coming year will be substantially greater by reason of the expansion of operations in the drilling for oil on provincial lands.

Dealing with the oil industry, the increase in production is worthy of our attention. The total production of oil for the year was 3,680,099 barrels as compared with 1,447,661 barrels in the fiscal year 1936-37, an increase of 2,232,438 barrels. Of this production the greater portion came from the southern Turner Valley on the western flank of the structure.

The attitude of the Department towards the wastage of gas is so well known that we merely make passing reference to the deplorable situation that is now about to be overcome. As our Departmental Report for the year 1932-33 shows, The Turner Valley Gas Conservation Board was appointed in April, 1932 to continue the tests our Petroleum and Natural Gas Division had been conducting for some years, also to suggest the adoption of production methods to minimize the wastage of gas. The Board's recommendations will be found in our Annual Report for the year that ended March 31st, 1933.

The opposition of many operators to any change in their methods nullified the work of the Board; however, with the completion of the Turner Valley Royalties crude oil discovery well in June, 1936, the majority of the operators as well as the citizens of the province became conscious of the fact that speedy action was essential if the oil resources of Alberta were to be a leader in the investment field of Canada.

Having decided that the wastage of gas must be discontinued, the Government sought the assistance of the Department of Mines, United States of America, Washington, D.C., in selecting competent conservation engineers, and as a result W. F. Knode, of the firm of Parker, Foran, Knode and Boatright, of Corpus Christi, Texas, came to Edmonton and assisted with the drafting of legislation for the bringing into force of proper operating methods. The legislation made provision for a Board with power to conserve the oil and gas resources of Alberta, but some question was raised later as to the validity of the Act. To remove any doubt the Legislature was called into special session and

as a result of their deliberation a new Act—"An Act for the Conservation of the Oil and Gas Resources of the Province of Alberta"—was assented to November 22nd, 1938. A copy of the Act immediately follows this section of the Report.

The development of the mineral resources has been left to private enterprise, the Department taking from production a reasonable share of the gross revenue. In the opinion of many authorities this procedure is the more preferable way as such action tends to a more rapid type of development and gives to the province a fair revenue.

As to the settlement of lands in the province, we have refrained from granting homesteads in many areas where it was doubtful that the lands were capable of sustaining a settler. Consequently, the time is not far distant when a change may have to be made in the system that has been followed in placing settlers on land.

With the exception of the fiscal year 1935-36, the year under review shows the greatest number of land patents issued together with the largest area covered thereby since the transfer of the natural resources to this province. The number in question for this year totalled 2,266 covering an area of 382,382.437 acres as compared with the peak year of 1935-36 which totalled 2,965 with an area of 433,529.126 acres.

Included with the Technical Division's section of this Report is a chart showing the total area of acres patented in the province from October 1st, 1930, date of the natural resources transfer, to March 31st, 1938. During this seven and a half year period 12,641 land patents have been issued which cover an area of 1,924,694.314 acres.

Also included in this section of the Report it will be noted that reference is made to the fact that completion of the boundary between Alberta and Saskatchewan from the south shore of Lake Athabaska to the northern boundary of the province is being carried out.

It is necessary to refer to the Forestry section of this Report in connection with the devastating forest fires which occurred during the calendar year of 1937.

Total loss of timber, young growth and other property for the year came to $1,088,465.95, the worst period since the transfer of the resources with the exception of the preceding year, 1936, when the loss totalled $1,549,930.30. By a strange coincidence the fires in 1937 were mainly outside the forest reserves—chiefly in the northern part of the province—whereas in 1936 they were mainly inside the reserves along the general area of the Rocky Mountains.

The seriousness of the situation is shown in the Director's report by the revelation that from the season of 1931 to the conclusion of the 1937 season there have been 2,249 forest fires which burnt over an area in excess of 1,939,661 acres, of which 1,404,859 acres carried tree growth. This latter area supporting tree growth would measure, if in a solid block, approximately 50 miles in length by 22 miles in width. The loss of timber, young growth and other property over this period of years reveals the alarming total of $4,074,377.36 as shown in an itemized statement of this Report.

It has been repeatedly stated that Alberta's forests represent indirectly her most important resource. With the loss of vast blocks of growing timber comes a shortage of water supply, not only to this province but to others lying to the east of us. Forest cover conserves and regulates more than anything else the stream-flow of rivers. With the loss of this flow, animal and fish life dies, a menace arises to sanitation in towns and cities, industrial life is handicapped and the final result is drought with intermittent floods.

Conservation of timber is of primary importance to the general life of this province and it will be imperative, if the present situation is to be changed, that not only must the personnel of the Forestry staff be considerably augmented but also that the present equipment be renewed and added to on a scale sufficiently generous to ensure that the dangerous situation which exists may be noticeably reduced.

Department's Revenue and Production, 1937-38.

Revenue for the year after deducting Game and Fisheries revenue from last year's figure shows an increase of $101,967.68. Expenditures, after making allowance in last year's figures for the cost of operation of the Game and Fisheries Branches, shows a decrease of $42,464.96. An itemized statement showing revenue increases and decreases is given on the first page of the Accounting Division's section of this Report.

Petroleum production was increased by 2,232,438 barrels and natural gas consumption by 10,484,771 Mcf. Coal produced during the calendar year, 1937, showed a decrease of 144,693 tons in comparison with 1936. Coke production increased by 728 tons and briquettes by 6,029 tons. Electric power used in the operation of coal-mines during the year was increased by 571,506 k.w.hrs.

Shale mined during the calendar year showed an increase of 2,556 tons with an increase of 983,410 bricks manufactured therefrom; cement production increased 23,572 barrels; and lime, 1,522 tons. Stone produced showed a decrease of 694 tons.

Provincial Lands Administration

Homestead Entries.—First and second homestead entries and soldier grants during the year totalled 1,600 covering approximately 256,000 acres in comparison with 1,432 with an approximate acreage of 229,120 for the previous year.

Comparative statement follows showing totals of homestead entries and soldier grants from 1930-31 to 1937-38. Fuller details of this information appear in the Accounting Division's section of this Report and in similar sections of the departmental Annual Reports of preceding years.

HOMESTEAD ENTRIES GRANTED

Fiscal Year	Homesteads	Second Homesteads	Soldier Grants	Total	Homesteads Granted to Women
1930-31	3,042	557	149	3,748	.....
1931-32	3,876	522	30	4,428	1,521
1932-33	3,112	358	29	3,499	976
1933-34	2,984	696	26	3,706	1,011
1934-35	2,425	325	30	2,780	835
1935-36	1,329	186	13	1,528	455
1936-37	1,296	129	7	1,432	479
1937-38	1,479	111	10	1,600	585
Totals	19,543	2,884	294	22,721	5,862
This year in comparison with last	Increase 183	Decrease 18	Increase 3	Increase 168	Increase 106

NOTE.—Homesteads for women were not available until 1932. The total number of women's homesteads as shown in the above statement is included in the first homestead total.

Consolidation of Rentals and Tax Accounts on Grazing Lands.—In connection with the consolidation of rental and tax accounts on grazing lands, the Director of Lands in his section of this Report comments on the conclusions, referred to under this heading in last year's Report, as they have been put into practice. Many expressions of appreciation have been received from lessees which showed that they considered such consolidation to be a great benefit, particularly from the viewpoint that from having only one account to pay they were greatly assisted in organizing their finances.

Other matters pertaining to provincial lands' administration are dealt with in this section of the Report.

School Lands Administration

Details of the administration of this Division are given in the section of this Report reserved for the Superintendent of School Lands.

Mining Lands Administration

Leases Dealt With.—A statement in this section covers leases in connection with petroleum and natural gas from provincial lands, school lands and crown reserves, coal from provincial and school lands, quarrying, quartz mining, salt and gypsum, bituminous sands, dredging and miscellaneous.

Totals from October 1st, 1930, date of the natural resources transfer to the province, to March 31st, 1938, are given as follows:—Leases active at date of this transfer, 19,635; issued since that date, 6,804; divided, 138; cancelled, 19,367; renewed, 222; active as at March 31st, 1938, 6,988. Areas covered by same are given in a separate statement.

Coal.—A brief history of the disposal of coal rights, the property of the crown, is given in this section with varying dates and royalties in this connection.

Revenue.—Income revenue of this Division totalled for the year $818,609.83, which in comparison with last year's total of $757,247.46 shows an increase of $61,362.37.

Technical Division

Issue of Notifications (Land Patents).—As already stated the fiscal year, 1937-38 takes second place since the transfer of the resources regarding the number of land patents issued and area covered thereby, the total reaching 2,266 with an acreage of 382,382.437 as compared with the peak year of 1935-36 with 2,965 and an acreage of 433,529.126.

The following comparative statement gives totals by fiscal years from 1930-31 to 1937-38:

NOTIFICATIONS ISSUED

Fiscal Year	Number of Notifications	Area, Acres
1930-31	23	3,019.71
1931-32	784	111,424.478
1932-33	1,260	178,887.233
1933-34	1,106	165,224.553
1934-35	2,006	324,611.398
1935-36	2,965	433,529.126
1936-37	2,231	325,615.379
1937-38	2,266	382,382.437
Totals	12,641	1,924,694.314
Increase this year in comparison with last	35	56,767.058

Lands transferred from the Dominion to the Province.—A list of lands transferred from dominion to provincial control, resulting from representations made to Ottawa from this Department, is given. These lands represented areas near the Lake McGregor Reservoir, Peace River Landing Settlement and villa lots at Calgary.

New Surveys.—Details of new surveys are given under this heading together with information as already stated which deals with the completion of the Saskatchewan and Alberta boundary line to the northern boundary of the province.

Soil Surveys.—A soil survey of the Coutts Quarantine Reserve, formerly held by the Dominion Government, was made as this land was the subject of many enquiries.

Plan Records showing Disposition of Townships in the Province.—A new set of plan records showing disposition of townships in the province has been started. Such records will take some years to complete but on completion will prove of immense value to the Department.

Plans of Areas which may be made available for settlement.—A number of areas which may be made available for settlement was selected and plans with this possibility in view were prepared.

Maps.—Interest is steadily growing in the varied stock of maps, published by this Division, which is available to the public. Enquiries are received from a wide-spread area which includes foreign countries and a large number have been sent out in response to applications.

Petroleum and Natural Gas

As stated in the opening remarks of the Director of Petroleum and Natural Gas in his section of this Report, the year 1937-38 saw Alberta passing from the status of importer to exporter of oil.

Activity continued on a large scale in southern Turner Valley and several new and large producers of crude oil made their appearance.

With the continuous increase of production, proration of wells was made effective by the marketing companies and on September 12th, 1937, the first order was issued limiting production to 65 per cent. of the capacity of wells.

Reasons given were that the capacity of pipe-lines and of refining and marketing facilities was completely exceeded by the available product. Further reductions were made. On November 1st the figure was reduced to 45 per cent and on November 15th to 35 per cent. On January 15th the Royalite Oil Company raised the figure to 42 per cent.

During the calendar year, 1937, Alberta raised the Dominion of Canada to fifth place in British Empire oil production, surpassing the totals recovered from British India and Sarawak. In the total of 2,982,572 barrels shown for Canada in this year, 2,796,908 barrels or 93.77 per cent were produced in Alberta.

Crown leases of the petroleum and natural gas rights active in Alberta at the end of 1937 numbered 6,466, covering an area of 971,312.48 acres, as compared with 3,838 leases with an acreage of 630,148.35 at the close of 1936.

Alberta's spectacular increase in petroleum production last year took her past the saturation point for provincial requirements and necessitated an outlet for the product beyond her borders. Prior to this, home production being insufficient for home needs, the balance had been imported from Montana.

Montana's crude oil prices, it has been stated, have been severely cut, resulting from the loss of Alberta as a permanent market. The prices of crude in Alberta have also been cut. The first, a reduction of 25 cents, came on September 1st, 1937, with gasoline reduced from 1 to 1½ cents per gallon according to grade. A second cut in Alberta crude became effective on January 6th, 1938, the reduction this time being 22 cents, with gasoline at this date reduced again by an additional 1½ cents per gallon. The two cuts since September, 1937, made a total reduction of 47 cents per barrel for crude oil and 3 cents per gallon for gasoline.

Drilling outside Turner Valley was active during the year and covered a large area of the province. A list of wells in these areas is given in the Director's section of this Report.

ALBERTA OIL PRODUCTION BY FISCAL YEARS

Period	Barrels	Period	Barrels
1914 to close of fiscal year, 1928-29	1,453,404	Fiscal year 1934-35	1,246,958
Fiscal year, 1929-30	1,135,014	1935-36	1,249,596
1930-31	1,614,202	1936-37	1,447,661
1931-32	1,246,328	1937-38	3,680,099
1932-33	871,082	Total	15,013,817
1933-34	1,141,473		

Increase this year in comparison with last ..... 2,232,438 barrels

ALBERTA OIL PRODUCTION BY CALENDAR YEARS

Calendar Year	Barrels	Calendar Year	Barrels
1914 to 1924	96,504	1932	917,622
1925	168,643	1933	1,013,040
1926	219,598	1934	1,265,940
1927	332,133	1935	1,263,750
1928	489,531	1936	1,320,442
1929	999,152	1937	2,796,908
1930	1,433,844		
1931	1,455,195	Total	13,772,302

Increase this year in comparison with last ..... 1,476,466 barrels

NATURAL GAS CONSUMPTION

Fiscal Year	Mcf.
1929-30	23,228,637
1930-31	23,312,006
1931-32	18,327,139
1932-33	16,061,383
1933-34	16,346,376
1934-35	16,600,059
1935-36	18,674,944
1936-37	18,727,496
1937-38	29,212,267
Total	180,490,307

Increase this year in comparison with last ..... 10,484,771 Mcf.

Forest Service

Fire Season.—The year 1937-38, with the exception of the previous year of 1936-37, was the most disastrous one for forest fires during the life of this Department.

The total loss passed the million dollar mark as compared with last year when the loss rose to over a million and a half. The coincidence has already been remarked that the loss this year was almost entirely outside the forest reserve as compared with last year when it was almost entirely within.

Midsummer and early fall brought extremely dry weather to the northern part of Alberta and it was in the Peace River, Lesser Slave and McMurray divisions that the greatest damage was experienced.

A detailed statement giving a summary of fire losses within and outside Alberta forest reserves from October 1st, 1930, date of the natural resources transfer to the province, to December 31st, 1937 appears on the next page.

SUMMARY OF FIRE LOSSES WITHIN ALBERTA FOREST RESERVES

Period	Number of Fires	Cost of Suppression	Area (Acres)	Salvable Timber M.f.b.m.	Salvable Timber (Cords)	Unsalvable Timber M.f.b.m.	Unsalvable Timber (Cords)	Total Loss
October 1, 1930 to March 31, 1931	9	$ 551.67	41.925	.....	.....	2.00	129.00	$ 71.69
April 1, 1931 to December 31, 1931	31	17,624.12	52,218.05	2,370.5	3,086	6,295.73	111,599.00	154,651.47
Calendar Year 1932	32	3,491.04	2,555.75	8	15,863	3,845.00	1,005.60	8,790.73
Calendar Year 1933	39	18,409.92	29,275.88	26.75	1,201	19,188.25	108,414.00	95,796.93
Calendar Year 1934	47	31,118.51	21,963.00	1,510	9,200	2,661.00	209,550.00	96,195.87
Calendar Year 1935	12	94.56	6.50	.....	.....	.....	60.00	45.50
Calendar Year 1936	52	108,894.48	165,465.00	7,573	25	885,192.00	764,594.00	1,504,273.45
Calendar Year 1937	17	387.38	90.00	.....	.....	37,500.00	8.50	292.05
TOTALS	239	$180,571.68	271,616.105	11,488.25	29,375	954,683.98	1,195,360.10	$1,860,117.69

SUMMARY OF FIRE LOSSES OUTSIDE ALBERTA FOREST RESERVES

Period	Number of Fires	Cost of Suppression	Area (Acres)	Salvable Timber M.f.b.m.	Salvable Timber (Cords)	Unsalvable Timber M.f.b.m.	Unsalvable Timber (Cords)	Total Loss
October 1, 1930 to March 31, 1931	47	$ 686.64	11,145.19	155.00	.....	3.75	.....	$ 79,950.85
April 1, 1931 to December 31, 1931	591	82,088.89	552,658.07	134,536.00	104,199.00	122,690.5	684,625.5	712,835.79
Calendar Year 1932	347	15,320.51	133,562.14	274.75	12,215.00	40,627.15	132,743.00	152,085.58
Calendar Year 1933	249	16,971.75	64,489.12	4,383.50	13,953.50	41,694.50	59,545.00	100,008.43
Calendar Year 1934	193	7,050.51	36,907.00	3,404.50	3,159.00	547.50	14,464.00	29,825.77
Calendar Year 1935	85	1,558.90	6,313.25	160.00	1,105.00	1,513.00	5,371.00	5,722.50
Calendar Year 1936	196	13,647.81	38,989.00	2,374.00	23,116.00	659.00	6,017.00	45,656.85
Calendar Year 1937	358	54,952.28	835,169.00	14,702.00	33,113.00	251,544.00	609,837.00	1,088,173.90
TOTALS	2,066	$192,277.29	1,679,232.77	159,989.75	190,950.50	459,279.40	1,512,602.50	$2,214,259.67

SUMMARY OF FIRE LOSSES WITHIN AND OUTSIDE ALBERTA FOREST RESERVES

Period	Number of Fires	Cost of Suppression	Area (Acres)	Salvable Timber M.f.b.m.	Salvable Timber (Cords)	Unsalvable Timber M.f.b.m.	Unsalvable Timber (Cords)	Total Loss
October 1, 1930 to March 31, 1931	56	$ 1,238.31	11,187.115	155.00	.....	5.75	129.00	$ 80,022.54
April 1, 1931 to December 31, 1931	622	99,713.01	604,876.12	136,906.5	107,285.00	128,986.23	796,224.5	867,487.26
Calendar Year 1932	379	18,811.55	136,117.89	282.75	28,078.00	44,472.15	133,748.60	160,876.31
Calendar Year 1933	288	35,381.67	93,765.00	4,410.25	15,154.50	60,882.75	167,959.00	195,805.36
Calendar Year 1934	240	38,169.02	58,870.00	4,914.50	12,359.00	3,208.50	224,014.00	126,021.64
Calendar Year 1935	97	1,653.46	6,319.75	160.00	1,195.00	1,513.00	5,431.00	5,768.00
Calendar Year 1936	248	122,542.29	204,454.00	9,947.00	23,141.00	885,851.00	770,611.00	1,549,930.30
Calendar Year 1937	375	55,339.66	835,259.00	14,702.00	33,113.00	289,044.00	609,845.50	1,088,465.95
TOTALS	2,305	$372,848.97	1,950,848.875	171,478.00	220,325.50	1,413,963.38	2,707,962.60	$4,074,377.36

Details concerned with fire seasons, forest protection, fire prevention, fire suppression, causes and fire-fighting equipment appear in the Forestry section of this Report.

Timber Industry.—In spite of an increased demand in Ontario and the United States for Alberta lumber—which materialized in an increase of 40 per cent in the manufacture of sawn lumber from timber cut on provincial lands—neither prices nor the demand were sustained. At the end of the year price levels were at a very low ebb and Alberta manufacturers found their yards heavily stocked with little demand in sight.

Increased production was evident also in mine timber, lath and some of the other timber products but the manufacture of railway ties dropped approximately 15 per cent from last year's figures. Contract prices on railway ties remained unchanged from the preceding year.

Grazing on Forest Reserves.—A decrease in grazing within the forest reserves is shown as a direct result of succeeding years of drought in southern Alberta which reduced the normal carrying capacity of livestock range.

Cattle grazed show a decrease of 4,486 from last year and sheep 2,269, though an increase of 977 is given for horses. Grazing permits issued were increased by 32 in comparison with the previous year.

Nursery and Tree Distribution.—As in previous years the transplanting of seedlings was carried out at Oliver and at the subsidiary nurseries at Fort Saskatchewan and Lethbridge.

With the absence of June rains the same high degree of success, experienced in past years, failed to materialize.

Lethbridge, however, is to be excepted from this statement where with water available for irrigation purposes, the same or even better success as in previous years was obtained.

Youth Forestry Training Project.—Following an agreement between the dominion and the province, by which each authority undertook to meet half the cost, the Youth Forestry Training Project was launched and a camp site on the Highwood River within the Rocky Mountains Forest Reserve was chosen.

The young men enrolled numbered 60, chosen from a group of several hundred applicants, and were sent to the Highwood camp for a period of training. Details under this particular heading are given in the Forestry section of this Report.

Game.—The administration of game, though only occupying a few weeks of the period under review as far as this Department was concerned, is nevertheless dealt with at the end of the Forestry section.

Coal

The output of coal produced from Alberta mines during the calendar year, 1937 was 5,551,682 tons which carried a valuation of $14,434,969.75, showing a decrease of 144,693 tons from the preceding year. Coal mined by farmers under permit for their own use totalled 1,883 tons, which is not included in the above total production figure for the year just quoted. A considerable tonnage in addition to this, and of which there is no record, was produced during the year by farmers without either permit or lease.

Production of coke for the calendar year, 1937 increased by 728 tons and of briquettes by 6,029 tons.

Disposition of Coal.—Coal sold for consumption in Alberta totalled 1,326,054 tons; sold for consumption in other Canadian provinces, 1,855,392 tons; sold for

consumption in the United States, 41,328 tons; sold to railway companies for locomotive use, 2,028,389 tons; used for making briquettes, 25,402 tons; used for making coke, 99,537 tons; used under colliery boilers, 145,967 tons; used by colliery railways, 6,022 tons; put to stock, 48,501 tons; put to waste, 35,797 tons. The above tonnages include coal lifted from stock and waste heaps, which is not included in the total output.

COAL PRODUCTION

Calendar Year	Tonnage	Valuation
1930	5,755,911	$19,379,000.00
1931	4,564,290	13,415,745.00
1932	4,870,030	13,441,193.00
1933	4,714,784	12,197,339.00
1934	4,748,848	12,440,616.53
1935	5,462,973	13,946,338.15
1936	5,696,375	14,720,004.06
1937	5,551,682	14,434,969.75
TOTALS	41,364,893	$113,975,205.49
Decreases this year in comparison with last	144,693	$ 285,034.31

PRODUCTION OF COKE AND BRIQUETTES

Calendar Year	Coke (Tons)	Briquettes (Tons)
1930	.....	24,111
1931	.....	15,102
1932	2,183	13,582
1933	49,279	16,104
1934	59,703	15,906
1935	63,428	18,812
1936	65,239	21,015
1937	65,967	27,044
TOTALS	305,799	151,676
Increases this year in comparison with last	728	6,029

Disposition of Electrical Power.—Purchased electrical power used by Alberta coal-mines during the calendar year, 1937 totalled 25,483,749 k.w. hrs.

ELECTRICAL POWER USED FOR OPERATION OF ALBERTA COAL-MINES

Calendar Year	K.w.hrs.
1930	25,003,606
1931	16,918,625
1932	14,875,890
1933	17,611,959
1934	19,447,621
1935	23,111,373
1936	24,912,243
1937	25,483,749
TOTAL	167,365,066
Increase this year in comparison with last	571,506

Shale and Clay Mined

During the calendar year, 1937 there were four shale pits in operation. Production from these pits totalled 27,144 tons of shale from which 9,946,794 bricks and 252 tons of hollow tile were manufactured.

Calendar Year	Shale Mined (Tons)	Bricks Manufactured (Number)	Tiles Manufactured (Tons)
1930	67,517	22,007,045	.....
1931	23,855	7,091,080	2,825
1932	8,446	3,444,010	182
1933	3,234	1,221,060	.....
1934	13,561	4,398,032	1,171
1935	20,258	7,349,300	.....
1936	24,588	8,963,384	.....
1937	27,144	9,946,794	252
TOTALS	188,603	64,420,705	4,430
Increases this year in comparison with last	2,556	983,410	252

Mines Branch Annual Report.—Statistical information covering Alberta's coal-mining activities and production of shale and clay mined for the calendar year, 1937 is given in complete detail in the published Annual Report of the Mines Branch, Department of Lands and Mines, for this period which appears as a separate publication to this Report.

Staff

I would like to repeat the expression of appreciation which was offered to the staff of this Department last year at the conclusion of my Report. In it reference was made to loyal and intensive application to the various duties of this Department.

Individual detailed reports from the various Divisions of the Department follow.

Your obedient servant,

J. Harvie,

Deputy Minister.

Edmonton, December 2nd, 1938.

THE OIL AND GAS RESOURCES CONSERVATION ACT

1938

(Second Session)

Chapter 1.

An Act for the Conservation of the Oil and Gas Resources of the Province of Alberta.

(*Assented to November 22, 1938.*)

HIS MAJESTY, by and with the advice and consent of the Legislative Assembly of the Province of Alberta, enacts as follows:

1. This Act may be cited as "*The Oil and Gas Resources Conservation Act.*" Short title

2. In this Act unless the context requires a contrary meaning,— Definitions

(*a*) "Board" means the Board constituted by this Act and appointed pursuant thereto; "Board"

(*b*) "Owner" when used in connection with any well in addition to its ordinary meaning, includes the person who is entitled to dispose of any production of any petroleum from such well or property, or who would be so entitled in the absence of any contract governing the disposition of such production; "Owner"

(*c*) "Petroleum" in addition to its ordinary meaning includes any mineral oil or relative hydrocarbon and natural gas existing in its natural condition in strata, but does not include coal or bituminous shales or other stratified deposits from which oil can be extracted by destructive distillation; "Petroleum"

(*d*) "Well" means any made orifice in the ground made by drilling, boring or in any other manner, from which any petroleum is obtained or obtainable or which is being so made for the purpose of obtaining any petroleum. "Well"

3. The intent, purpose and object of this Act is to effect the conservation of oil resources and gas resources or both in the Province by the control or regulation of the production of oil or gas or both, whether by restriction or prohibition and whether generally or with respect to any specified area or any specified well or wells or by repressuring of any oil field, gas field or oil gas field and, incidentally thereto, providing for the compulsory purchase of any well or wells. Intent, purpose and object of Act

4. This Act applies to every well as defined in this Act situate in the Province whether made before or after the coming into force of this Act from which any petroleum is obtained or is obtainable or which is being made for the purpose of obtaining or producing any petroleum. Application of Act

Part I.

Relating to the Conservation of Oil Resources and Gas Resources

Constitution of Board

5. In order to effect the intent, purpose and object of this Act there is hereby constituted a Board to be called "The Petroleum and Natural Gas Conservation Board," which shall be a body politic and corporate.

Membership of Board

6.—(1) The Board shall consist of not more than three members of whom one shall be the chairman.

First members thereof

(2) The first members of the Board shall be William F. Knode, Fred G. Cottle and Charles W. Dingman, of whom the first named shall be the chairman; the said William F. Knode shall hold office until the 30th day of June, 1939, and thereafter during the pleasure of the Lieutenant Governor in Council; the said Fred G. Cottle and Charles W. Dingman shall hold office until the 30th day of June, 1943, and thereafter during the pleasure of the Lieutenant Governor in Council.

Vacancies therein

(3) In the event of any vacancy occurring in the membership of the Board the Lieutenant Governor in Council may appoint a person to fill such vacancy; and in case the office of chairman becomes vacant, the Lieutenant Governor in Council shall appoint such person or any other member of the Board as chairman thereof; and every person so appointed shall hold office for the term of five years from the date of his appointment and thereafter during the pleasure of the Lieutenant Governor in Council.

Removal of members

(4) Notwithstanding anything contained in this section the chairman, as well as any other member of the Board, may be removed from office by the Lieutenant Governor in Council at any time upon the address of the Legislative Assembly.

Remuneration of chairman and members

7. The chairman and each other member of the Board shall receive such remuneration as may be fixed by the Lieutenant Governor in Council.

Prohibition of certain interests of chairman and members

8. Neither the chairman nor any other member of the Board shall have any monetary interest of any description, directly or indirectly, in any property or in any business or undertaking carried on for the purpose of searching for, winning or getting, or for the purpose of gathering, collecting, processing, handling or distributing any petroleum in the Province.

Resignation of deputy chairman and appointment of *pro tempore* member

9. The Lieutenant Governor in Council may from time to time,—

(*a*) designate any member of the Board as the deputy chairman thereof;

(*b*) in the case of death, illness or absence from the Province of Alberta of a member of the Board or of his inability to act from any cause, appoint some person to act *pro tempore* in his stead and the person so appointed shall during the period for which he is so appointed have all the powers and perform all the duties of a member of the Board.

Board office

10. The office of the Board shall be at such place as may from time to time be approved by the Lieutenant Governor in Council.

Board meetings

11.—(1) Meetings of the Board shall be held at the call of the chairman, or in his absence the deputy chairman, at such place or places and upon such notice as to the chairman seems proper.

(2) The chairman, or in his absence the deputy chairman, shall call a meeting of the Board immediately upon being requested so to do in writing by the other members of the Board.

(3) The chairman, or in his absence the deputy chairman, and one other member of the Board shall constitute a quorum at any meeting of the Board.

The chairman the executive officer of the Board

12.—(1) The chairman shall be the executive officer of the Board and shall sign all orders or directions issued by authority of the Board and shall have full power to act for, on behalf of, and in the name of the Board in the execution, performance and carrying out of any act, matter or thing which is within the power of the Board subject only to such express directions or decisions as may have been given or made by a resolution of the Board passed at a regularly held meeting thereof.

Powers, duties and functions of the deputy chairman

(2) At any time during which the office of chairman is vacant, or the chairman is absent from the Province, or is incapacitated for any reason from executing his functions as chairman, the deputy chairman shall have and exercise all the powers, duties and functions which are by this Act conferred upon the chairman.

Evidential value of certain documents when signed by the chairman or deputy chairman

(3) Any order or direction or other document purporting to be used by authority of the Board shall when signed by the chairman or deputy chairman be admitted as evidence of the contents thereof without any proof of the signature of the chairman or deputy chairman, as the case may be, or of the authority of the chairman or deputy chairman, as the case may be, to sign the same.

General powers of Board

13. The Board is hereby authorized and empowered to perform, execute and carry out all the duties, powers and functions imposed or conferred upon the Board by this Act, and for that purpose to do all and any acts and things which are necessary for or incidental to the performance, execution or carrying out of any such duty, power or function.

Minutes of meetings and accounts and records of financial business

14.—(1) The Board shall keep at its office,—

(*a*) full and complete minutes of all business transacted at its meetings;

(*b*) full and complete accounts and records of all the financial business of the Board.

(2) All such minutes, accounts and records shall be deemed to be of so public a nature as to be admissible in evidence by the mere production thereof by the Board or by any employee thereof authorized by the Board to produce the same.

Power of Board to appoint officers, obtain services of professional persons and to make enquiries

15. The Board is hereby authorized and empowered,—

(*a*) to appoint such officers, servants and employees as the Board deems necessary for the transaction of its business and to prescribe their duties, conditions of employment and remuneration;

(*b*) to obtain the services of such engineers, accountants and other professional persons as the Board deems necessary for the proper and convenient transaction of its business;

(*c*) to make from time to time such enquiries and investigations into all or any of the following matters, namely; the production, transportation and distribution of petroleum or any classification thereof in the Province at such places and at such times and in such manner as may seem advisable to the Board.

Power to control and regulate the production of petroleum

16.—(1) In order to effect the intent, purpose and object of this Act, the Board is hereby authorized and empowered with the approval of the Lieutenant Governor in Council to control and regulate the production of petroleum either by restriction or prohibition or both, or to repressure any oil field, gas field or oil gas field and, incidentally thereto, to provide for the compulsory purchase of any well or wells, and for such purposes to make such orders and regulations as the Board deems requisite.

Revocation of orders or regulations by Order in Council

(2) The Lieutenant Governor in Council may revoke any order or regulation made pursuant to this section.

Compensation schemes

17.—(1) Within six months after the date upon which this Act comes into force, and at any other time upon the direction of the Lieutenant Governor in Council, the Board shall proceed to prepare a scheme or schemes for the provision of compensation for persons who are injured by reason of any conservation orders made pursuant to this Act, and submit every such scheme to the Lieutenant Governor in Council.

Approval of scheme and establishment thereof

(2) The Lieutenant Governor in Council may approve any scheme so prepared, and upon such scheme being so approved may establish the same and thereupon the scheme so established shall have the same force and effect as if it had been enacted as a part of this Act.

Revocation of scheme

(3) The Lieutenant Governor in Council may from time to time vary, amend and revoke any scheme previously approved.

Powers conferable on Board

(4) The Lieutenant Governor in Council may confer upon and vest in the Board any power which may be considered necessary or advisable to enable the Board to carry out the provisions of any such scheme.

Schemes general or restricted in application

(5) Any scheme may be general in its application, or may be restricted to such wells or classifications of wells in such part or parts of the Province as may be designated thereby.

Provisions of scheme as to certain matters

(6) In any scheme provision may be made for all or any of the following matters:

(*a*) The circumstances and conditions under which any person is entitled to receive compensation under the scheme;

(*b*) The matters in respect of which any compensation is payable and the method in which the amount of any such compensation shall be ascertained;

(*c*) The conditions subject to which any compensation is to be paid to any person;

(*d*) The manner in which compensation is to be payable;
(*e*) The persons by whom any such compensation shall be payable;
(*f*) The apportionment between all the persons by whom compensation is payable, of the amount thereof payable by each such person;
(*g*) Such other matters or things as may be necessary for the purpose of carrying out the scheme.

Raising of money required for compensation

(7) For the purpose of raising any money required for the payment of compensation under any scheme, the Board shall levy the amount thereof by means of a uniform rate on the dollar upon the assessed value of all the petroleum property of the persons who are liable under the scheme for the payment of such compensation, and all the provisions of Part III of this Act relating to the levying and collection of any tax imposed pursuant thereto shall, *mutatis mutandis,* apply to any levy made pursuant to this section.

Registration of address for service

18.—(1) Every person who is the owner of any well in the Province may register with the Board an address for service in the Province of Alberta of all notices and orders made pursuant to this Act affecting or respecting any well of which such person is the owner.

Service of notices and orders at address for service

(2) All notices and orders affecting or respecting any well shall be deemed to have been served upon the owner of such well upon the delivery thereof at his registered address for service or in case the same is sent by mail upon the expiration of twenty-four hours, exclusive of Sundays and holidays, from the time of sending such notice or order by prepaid mail to such owner at his registered address for service.

Service of notices and orders where no address for service

19. If there be no registered address for service as aforesaid, in respect of any well, all notices and orders respecting such well shall be posted up in any part of the office of the Board to which the public has access and shall be kept so posted up for twenty-four hours, exclusive of Sundays and holidays, and upon the expiration of the said period shall be deemed to have been duly served upon the owner of such well.

Keeping of production records by owners of wells;

20.—(1) Every person who is the owner of a producing well, shall keep at his office or other place of business within the Province, complete and accurate records of the production of all petroleum from his well and of the disposition made thereof.

and by refiners;

(2) Every person who is the owner or who has the control or management of any refinery in the Province shall keep at his office or other place of business in the Province records of all petroleum received into such refinery and of the names and addresses of the persons from whom such petroleum was so received, the quantity and quality of the petroleum received from each such person, and the price payable in respect thereof, and the disposition of all products obtained from refining the same, and every disposition made thereof.

and duty to produce the same

(3) Every person who is by this section required to keep records shall produce such records at all reasonable times when requested so

to do by any member of the Board, or any person authorized by the Board, and shall afford such member or person facilities for inspecting the same and making copies thereof and taking extracts therefrom.

Requisition by Board from Government Departments of information

21. The Board shall be entitled to require from any Department of the Government Service any information required by the Board for the purpose of carrying out the duties and exercising the powers imposed or conferred upon the Board by this Act, and every official of every such Department shall, subject to the approval of the Minister presiding over the same, give to the Board such assistance as he is able to afford and the Board may require.

Part II.

Powers and Duties of the Board in Respect of The Oil and Gas Wells Act, 1931.

Enforcement by Board of regulations under *The Oil and Gas Wells Act*, 1931

22.—(1) It shall be the duty of the Board and it shall have the power to undertake the enforcement of any regulations made pursuant to The Oil and Gas Wells Act, 1931, whenever the Lieutenant Governor in Council directs the Board so to do or designates the Board in any such regulations as the person by whom the regulation shall be enforced or by whom any act or thing, the doing of which is authorized or required by any such regulation shall be done.

Defrayal of expenditures

(2) The expenditures incurred by the Board in respect of the enforcement of any such regulations shall be payable to the Board by the Provincial Treasurer out of such sums as may be appropriated by the Legislature for the purpose.

Part III.

Assessment and Taxation of Petroleum Properties.

Definitions of "petroleum property"

23. In this part of this Act unless the context otherwise requires, the expression "petroleum property" means the right, title, estate or interest of any person to or in any petroleum which is in the earth in the Province, and includes,—

(i) every kind and description of right of any person to search for, win, get and retain any such petroleum, whether such right is incidental to the ownership of any land or is created by any lease, permit, contract or otherwise howsoever, and includes all buildings, structures, and erections, used for the purpose of searching for, winning, getting and retaining any such petroleum; and

(ii) every right, title, estate, interest or benefit reserved, acquired or retained upon the making of any sale, lease, sublease, assignment, license or any other arrangement relating to the disposition of any right, title, estate or interest to or in any such petroleum, and any interest of the Crown under any sale, grant, lease, license, or permit made or issued by the Crown in respect of any such petroleum.

24. All petroleum property in the Province which is not by this Act expressly exempted, shall be liable to assessment and taxation for the purposes of this Act. Liability of petroleum property to assessment and taxation

25. All petroleum property situate in any part of the Province for the time being designated by any order of the Lieutenant Governor in Council as a part of the Province in which such property is exempt from assessment under this Act shall so long as such order remains in force be exempt from assessment and taxation under this Act. Exemption from assessment and taxation

26.—(1) Every person who is the owner of any petroleum property liable to assessment and taxation under this Act shall not later than the thirty-first day of December in the year 1938, and not later than the thirtieth day of June in every year thereafter, without any notice or demand, deliver to the Board a detailed statement in writing which shall be in such form as the Board may require, setting out,— Statements to be furnished by owners of petroleum property

(*a*) the legal description of the land to which such petroleum property relates;

(*b*) the right, estate, or interest of the owner, with sufficient particulars of the title of such person to such petroleum property;

(*c*) the rentals and royalties payable by such person in respect of such petroleum property to any other person or persons and the name and address of each such person;

(*d*) particulars of all buildings, structures and erections used for the purpose of searching for, winning, getting and retaining any petroleum product to which the petroleum property relates;

(*e*) in case the owner of the petroleum property is a corporate body, the last balance sheet prepared pursuant to the provisions of *The Companies Act,* 1929, or any other statute applicable to the corporation;

(*f*) such further additional information as the Board may require.

(2) In the case of a corporation, association or other corporate body, every such return shall be made and signed by the President, Secretary, Treasurer or other responsible officer having knowledge of the affairs of such corporation, association, or other body, or by such other person or persons employed thereby or connected with its business as the Board may require. Requirement as to signing in case of a corporation

(3) The Board may prescribe the forms on which such returns shall be made or furnished, and may enlarge the time for making any return under this Act. Prescription by Board of forms of returns

27.—(1) The Lieutenant Governor in Council may from time to time appoint an assessor for the purposes of this part, who may be a member of the Board, and prescribe his remuneration which shall be payable by the Board. Appointment of assessor

Assessments and preparation of assessment roll

(2) In the year 1939 as soon as is practicable after the first day of February and in each subsequent year as soon as is practicable after the thirtieth day of June, the assessor shall proceed to assess at its fair actual value each petroleum property liable to assessment and taxation, and shall prepare an assessment roll setting out thereon a brief description of each petroleum property assessed, the name and address of the owners thereof, and the assessed value thereof.

Powers of assessor as to assessments

(3) In making such assessments the assessor may accept or disregard either wholly or in part any statements furnished pursuant to section 26, and may take any steps which he in his discretion considers necessary for the purpose of ascertaining the fair actual value of the assessed property, and for that purpose may resort to all sources of available information, and may fix such amount as appears to him to be just and equitable.

Certification and delivery to Board of assessment roll

28. Upon the completion of the assessment roll the assessor shall endorse thereon or attach thereto a certificate setting out the date upon which the roll was so completed, and sign the same and deliver the same to the Board.

Duties of Board as to the fixing of date for revision of assessment roll, the posting up thereof, and the sending out of assessment notices

29. The Board shall as soon as may be after the delivery of the assessment roll, fix a day, time and place for the revision of the assessment roll which shall not be earlier than the thirtieth day after the day upon which the assessment roll is so delivered, and shall cause a copy of the assessment roll and the certificate endorsed thereon together with a notice of the day, time and place so fixed for the revision of the assessment roll to be posted up in a conspicuous place in any part of the offices of the Board to which the public have access and shall keep the same so posted up for twenty days and shall within ten days after the posting up of the assessment roll cause to be sent by mail to every person whose name appears on the assessment roll as the owner of any petroleum property, an assessment notice containing the particulars appearing in the roll with respect to such petroleum property, and a notice setting out the day, time and placed fixed for the revision of the assessment roll, together with a copy of the next ensuing section.

Notice of application to Board to vary assessment roll

30. Any person whose name appears upon the assessment roll as a person assessed may apply to the Board to vary the assessment roll and to alter any assessment shown thereon which he alleges to be improperly assessed, or to assess any property which he alleges is liable to be and has not been assessed, and to include the same in the assessment roll, upon giving the Board notice in writing within twenty days after the date upon which the assessment roll was first posted up pursuant to the last section.

Determination by Board of applications to vary the assessment roll upon revision

31. At the time and place fixed for the revision of the assessment roll or at any adjournment thereof, the Board shall proceed to hear and determine every application of which notice has been given in conformity to the last preceding section, and to make such disposition thereof as the Board may in its discretion deem fit and proper.

Revision of assessment roll and certification thereof by the Board

32.—(1) As soon as the Board shall have disposed of all such applications as aforesaid, it shall proceed to revise the assessment roll in accordance with the dispositions made by the Board of such applications and thereupon shall cause to be attached to the assignment roll so revised a certificate which may be in the following form:

"This is to certify that the assessment roll hereto annexed is the assessment roll for the year 19..... as revised by the Petroleum and Natural Gas Conservation Board.

"Dated at the office of the Board this.....
day of....., 19.....

"The Petroleum and Natural
Gas Conservation Board, by

.....
Chairman."

Conclusiveness of revised assessment roll

(2) The assessment roll so revised and every assessment matter and thing set out therein and the certificate attached thereto shall be conclusive and binding upon all persons mentioned therein or affected thereby, and shall not be questioned in any proceedings in any Court as to any statement, matter or thing contained therein whatsoever.

Levy by Board in 1939

33.—(1) In the year 1939 and as soon as may be after the 30th day of June and not later than the 30th day of September, the Board shall proceed to levy a tax at the rate of ten mills on the dollar uopn the assessed value of all properties on the assessment roll as certified by the Board or at such lesser uniform rate as will produce a sufficient sum to meet the expenditures incurred by the Board under this Act in the year ending the 30th day of June, 1939, together with the expenditures incurred by the Board constituted by *The Oil and Gas Wells Act,* 1938, under that Act in the year ending the 30th day of June, 1939, but exclusive of expenditures in respect of any of the matters set out in Part II of this Act.

Levy by the Board in subsequent years

(2) In every year thereafter the Board shall as soon as may be after the 30th day of June and not later than the 30th day of September proceed to levy a tax at the rate of ten mills on the dollar upon the assessed value of all properties on the assessment roll as certified by the Board in that year or at such lesser uniform rate as will produce a sufficient sum to defray the expenditures incurred by the Board under this Act in the year ending on the 30th day of June in that year, exclusive of expenditures in respect of any matters set out in Part II of this Act.

Tax demand

34. As soon as may be after the Board has struck the rate it shall cause to be sent by mail to every person whose name appears on the assessment roll as the owner of any assessable petroleum property a notice containing a brief description of the petroleum property in respect to which such person is assessed, the amount of the tax payable in respect thereof, and a demand for the payment of the tax.

Penalties for non-payment of tax

35.—(1) In the event of any of the taxes imposed under this Act remaining unpaid after the expiration of the sixty days after the date of mailing the notice referred to in section 34, there shall be added thereto, by way of penalty, a sum equal to five per cent of the amount of taxes unpaid, and in the event of any taxes or penalties, or any part thereof remaining unpaid after the expiration of one hundred and twenty days after the date of such mailing, there shall be added thereto, by way of penalty, an additional sum equal to five per cent of the amount of such taxes and penalties at that date remaining unpaid, and such amount or amounts so added shall form part of the taxes which are created a special lien upon the petroleum property in respect of which the same are payable under the provisions of this Act.

Construction of section

(2) Nothing in this section contained shall be construed to extend the time for payment of the said taxes, nor in any way to impair the right of distress, nor any other remedy provided by this Act, for the collection of said taxes.

Power of Board to order seizure of petroleum to enforce payment of tax

36. In any case where the tax payable to the Board in respect of any petroleum property or any interest therein is not paid within thirty days after the date of mailing the notice referred to in section 34 the Board may order that from and after a date fixed by the Board all petroleum or any specified kind or kinds thereof produced from any well owned or operated by a person who is liable to the payments of such tax shall be delivered to the Board or to such person or persons who may be designated by the Board, and shall be sold in such manner and at such price as the Board may direct until such time as the Board has received out of the proceeds of sale or otherwise the full amount of the tax together with any penalties thereon and such further amount as the Board may fix as the amount of the expenses of the Board in relation to any act, matter or thing done in pursuance of this section.

Ownership of petroleum affected by an order made under section 36

37. Upon the making of any order pursuant to section 36, from the date so fixed by the Board until such time as the Board has received the full amount of the tax together with any penalties thereon and the expenses of the Board, the petroleum to which the order relates shall become the property of the Board, and shall be freed and discharged from all claims and demands of every other person howsoever and whensoever created.

Tax a charge on petroleum property

38. The tax payable in respect of any petroleum property shall be a charge thereon having priority over all other claims and demands of any person other than the Crown.

Penalties for non-compliance with section 26

39. In case any person who is required under the provisions of section 26 hereof to make or furnish any statement or information does not comply with the provisions of the said section, the Board may by order impose upon any such person a penalty of not more than $10.00 per day for each day during which such default is made, which penalty or sum shall be added to and become a part of the tax imposed by this Act, and may further order that any such person shall pay a tax of double the amount of the tax payable in respect of the petroleum property to which such statement or information relates.

40. —(1) In case any question of law arises with respect to any decision of the Board made pursuant to any provision of this Part, any person affected thereby may within thirty days after the date upon which such decision was made give notice in writing to the Board requiring the question to be referred to a Judge of the Supreme Court of Alberta. Reference to a Judge of the Supreme Court of certain questions of law

(2) Upon the receipt of any such notice the Board shall cause an application to be made to a Judge to fix the day, time and place for proceeding with the reference and for directions as to the notice thereof to be given and the persons to be given notice and the manner in which such notice is to be given. Application by Board

(3) Upon the day, time and place so fixed or at any other day, time and place to which the hearing is from time to time adjourned the Judge shall proceed to determine the question in a summary manner, and for that purpose may take evidence either orally or by affidavit and shall make such order to determine such question as he deems proper. Determination of question by order of Judge

(4) Every order made by a Judge under this section shall be final and conclusive and there shall be no appeal therefrom. Finality of order

41. The Board is hereby empowered to borrow from time to time on the security of the taxes for the current year which are for the time being uncollected, such sums as may be required for the defrayal of the current expenditures of the Board. Borrowings by Board

42. The Lieutenant Governor in Council may authorize and empower the Provincial Treasurer,— Guarantees of borrowings of Board by Province

(*a*) to guarantee on behalf of the Province the due payment of any money borrowed pursuant to the last preceding section, together with the interest payable thereon, upon such terms and conditions as may be prescribed by the Lieutenant Governor in Council;

(*b*) to advance to the Board from time to time out of the General Revenue Fund such sums as may be deemed advisable upon such security, at such rate of interest and such terms and conditions as may be prescribed by the Lieutenant Governor in Council. Advances to Board out of General Revenue Fund

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Part IV.

Provisions of General Application.

43. The procedure to be followed and the forms to be used in any inquiry, hearing, meeting, proceeding or other transaction of the Board or upon the making of any order shall be such as the Board may from time to time determine, and as are not inconsistent with any express provision of this Act. Powers of Board as to procedure

44. Save and except only in cases where it is otherwise expressly provided by this Act the Board shall have the exclusive jurisdiction to examine, inquire into, hear and determine all matters and questions arising under this Act, and every action, decision, and order of the Board with respect to any such matter or question shall be Exclusive jurisdiction of Board

final and conclusive and shall not be open to question or review in any court, and no proceeding of or by or before the Board shall be restrained by injunction, prohibition or other process or proceedings in any court or be removable by *certiorari* or otherwise into any court, nor shall any action or proceeding be brought against the Board or any member of the Board or any officer or employee of the Board in respect of any act or thing done in purported pursuance of this Act.

Prohibition of production at wells operated in contravention of Act or any order or regulation

45. In case the Board is satisfied after an inquiry held upon such notice and to such persons as the Board deems proper, that any well is being operated in such a way that any provision of this Act or of any order or regulation of the Board made pursuant to this Act is contravened or not complied with the Board may order that on and from a date to be fixed by the order no production shall be permitted at such well and that the same shall be shut down and kept shut down until such time as the Board may order to the contrary.

Enforcement of orders of Board by seizure

46.—(1) The Board make take such steps and employ such persons as the Board considers necessary for the enforcement of any order made by it and for the purposes thereof may forcibly or otherwise enter upon, seize and take possession of the whole or part of the movable and immovable property in on or about any well or used in connection therewith or appertaining thereto together with the books and offices of the owner thereof, and may, until such order has been complied with, either discontinue all production or may take over the management and control thereof.

Duty of officers and employees of owner of seized well

(2) Upon the Board so taking possession of any well and so long as such possession continues, it shall be the duty of every officer and employee of the owner thereof to obey the orders of the Board or of such person or persons as it places in charge and control thereof.

Authority of Board upon taking possession

(3) Upon possession being so taken of any well the Board may take, deal with and dispose of all petroleum produced at such well as if the same were the property of the Board, subject to the obligation to account for the net proceeds thereof to the persons entitled thereto.

Costs of proceedings

(4) The costs and expenses of and incidental to proceedings taken by the Board under this section shall be in the discretion of the Board, and the Board may direct by whom and to what extent they shall be paid.

The giving of notice and the holding of hearings not requisite in case of certain orders

47.—(1) Unless it is otherwise expressly provided by this Act to the contrary, any order or regulation which the Board is authorized by this Act to make may be made upon its own motion or initiative, and without the giving of any notice, and without holding any hearing.

Power of Board to make orders effective in the future or upon a contingency or subject to conditions

(2) The Board may direct in any order that the same or any portion or provision thereof shall come into force at a future fixed time or upon the happening of any contingency, event, or condition in such order specified, or upon the performance to the satisfaction of the Board or of any person named by it of any terms which the Board may impose upon any party interested, and the Board may

direct that the whole or any portion of such order shall have force for a limited time or until the happening of any specified event.

(3) When any work, act, matter or thing is by any order or regulation of the Board required to be done, performed or completed within a specified time, the Board may, if it thinks proper so to do, extend the time so specified. Extension of time fixed by any order

(4) An order of the Board need not show upon its face that any proceeding or notice was had or taken, or that any circumstances existed necessary to give it jurisdiction to make such order.

48. The Board and every member thereof and every other person authorized by the Board to make any inquiry or investigation pursuant to any of the provisions of this Act shall for the purpose of any such investigation or inquiry have all the powers which may be conferred upon a commissioner appointed pursuant to *The Public Inquiries Act* for the purpose of taking evidence on oath or affirmation and compelling the attendance of witnesses and the production of documents. Powers of the Board, its members and persons authorized by the Board in making inquiries and investigations

49. The Board and every member thereof and every person authorized by the Board to make any inspection shall be entitled to enter upon and inspect any place which is a well or a place at which any petroleum is refined or is occupied or used in connection with any well or any place at which petroleum is refined at any time between the hour of eight o'clock in the forenoon and six o'clock in the afternoon and at any other time during which any business or operation is being carried on thereat, and to inspect such place and every matter and thing thereon and all books, records and documents found thereon, and every person who prevents or hinders or obstructs the Board or any member thereof or any person so authorized as aforesaid whilst making any such entry and inspection shall be guilty of an offence against this Act. Power of inspection of wells and refineries

50. Every person who whether as a principal or otherwise contravenes or makes default in complying with any provisions of this Act or of any order or regulation made pursuant to this Act or who causes either alone or in conjunction or participation with others any owner of any well to contravene or make default in complying with any such provision as last aforesaid or who instructs, orders, directs, or causes any officer, agent or employee of any owner of any well to contravene or to make default in complying with any such provision shall be guilty of an offence against this Act. Certain contraventions and defaults offences

51. Every person who contravenes or makes default in complying with any of the provisions of this Act shall be guilty of an offence and shall be liable on summary conviction therefor to a fine of not less than one hundred dollars nor more than one thousand dollars in respect of each such offence and in the case of a continuing offence to a fine of not less than one hundred dollars nor more than one thousand dollars for the first day upon which such offence occurs and of not less than fifty dollars nor more than five hundred dollars for each subsequent day during which the offence continues. Penalties upon summary conviction

Disposition of taxes and penalties

52. All sums of money collected by the Board pursuant to any of the provisions of this Act on account of taxes and all fines imposed pursuant to section 51 shall be the property of the Board and shall be expended in defraying the expenditures of the Board under Part I.

Recoverability of moneys payable to the Board by suit

53. The Board shall be entitled to recover any moneys payable to the Board pursuant to any provision of this Act as if the same were a debt by action in any court of competent civil jurisdiction.

Power of Board as to remedies for enforcement of its orders

54. In any case where the Board has pursuant to this Act more than one remedy for the enforcement of any order or for the payment of any money payable pursuant to any order of the Board, the Board may resort to any or all such remedies as it may from time to time think proper, either concurrently or successively until such time as the order has been complied with or the money payable thereunder together with all costs and expenses has been paid and satisfied.

Compulsory purchase by the Board of wells

55.—(1) Incidentally to the conservation of oil resources or gas resources or both or to repressuring of any oil field, gas field or oil gas field, and for the purpose of carrying out any order or regulation made by the Board in relation to such conservation or repressuring, the Board is hereby authorized and empowered to purchase any well or wells together with any property or right appurtenant thereto or used in connection therewith which the Board considers requisite.

Notice to owner and effect thereof

(2) The Board may at any time give notice to the owner of any property which is a well or any real property or any personal property or any right which is used in connection with a well or is appurtenant thereto that the Board requires the same under this section and such notice shall set out the description of the same; and upon the expiration of 30 days from the service of such notice the property mentioned therein shall become and be the absolute property of the Board freed and discharged from all claims and demands whatsoever of all persons other than the Crown.

Price payable fixed by agreement, otherwise by arbitration

(3) The price payable by the Board for such property shall be such price as may be agreed upon and in default of agreement, the price shall be determined by arbitration under the provisions of *The Arbitration Act* relating to arbitration by two arbitrators one of whom shall be appointed by the Board and one by the person who was the owner of the property set out in the notice.

Duty of arbitrators

(4) In determining the price to be paid by the Board for any property the arbitrators shall ascertain the amount of money at which the property would be accepted in the payment of a just debt and in so doing shall not take into account any loss of production occasioned by any order or regulation of the Board made pursuant to this Act.

Payment of money into Court in certain cases

(5) In case any doubt arises as to the persons entitled to receive any money payable for any such property, or as to the amount payable thereout to any person, the Board shall pay the amount payable by the Board into the Supreme Court of Alberta and thereupon the same shall be paid out to such persons and in such

amount as may be determined by the Court or a judge thereof upon the application of any person claiming to be entitled thereto.

Evidential value of certificate of the Board

(6) A certificate signed by the Board to the effect that it has acquired any property pursuant to this section shall be conclusive evidence of all facts stated therein.

Certain powers of the Board incidental to orders or regulations made under section 16

56. Incidentally to any orders or regulations of the Board made pursuant to section 16, the Board is hereby authorized and empowered,—

(*a*) to provide for the voluntary surrender to the Board of the right to produce such amount of production as may be prescribed by the Board and for the resale by the Board of the right so surrendered, upon such terms, in such manner, and to such extent as the Board deems proper, to the owners or operators of other wells, and for the payment of the proceeds of such resales into a compensation fund and for the payment out of such fund of compensation to the persons surrendering such right to produce, having regard to the amount of production so surrendered;

(*b*) to negotiate agreements from time to time with the owners of producing wells for the purpose of providing for the payment to the owners of wells who have surrendered to the Board any right to produce from such wells, such compensation as the Board considers fair and reasonable.

Repeal

57. *The Oil and Gas Conservation Act,* 1938, being chapter 15 of the Statutes of Alberta, 1938, is hereby repealed.

Coming into force of Act

58. This Act shall come into force on the day upon which it is assented to.

Provincial Lands Administration

REPORT OF THE DIRECTOR OF LANDS, J. W. STAFFORD

During this fiscal year no material changes took place in the general administration, and land agencies were still maintained at Calgary, Lethbridge and Peace River with permanent sub-agencies at Bonnyville, Medicine Hat, Rocky Mountain House, Grande Prairie, Athabaska, Lac La Biche, Hines Creek and St. Paul.

In addition to the services granted to settlers at the above enumerated subagencies, arrangements were made whereby members of the staff transacted subagency business on certain specified dates at the following points: Mayrthorpe, Barrhead, Winfield, Edson, Rycroft, Bay Tree, Spirit River, Breton, Whitemud Creek, High Prairie, Fort Vermilion and Fawcett. A gratifying increase was shown in connection with general business.

The total revenue received to the end of the fiscal year amounted to $181,412.38 as against $111,610.39 for the previous fiscal year being an increase of $69,801.99. Details of this revenue are given in the Accounting Division's section of this Report.

Added to the general administration of provincial lands, this Division maintained a complete filing system and a central registry through which all letters pertaining to the Department were received and from which all outgoing letters were dispatched. During the past year a total of 107,140 letters was received and 173,372 letters were dispatched.

In connection with the Filing Division 6,222 new files were made in addition to filing and indexing correspondence for the Branch. Stencils cut numbered 376 with 145,307 pages mimeographed. Translations for this and other departments numbered 352.

Homestead and other entries granted during the year were as follows:

Homestead entries	1,479
Second homestead entries	111
Soldier grants	10
Total	1,600

This total included 585 entries accepted from women.

An increase of approximately 200 homesteads over the previous fiscal year is shown which is very gratifying considering the fact that the granting of homestead entries within the boundaries of the Lethbridge and Calgary agencies has been discontinued as well as in that portion of the Edmonton district lying west of the 5th meridian.

The following statement shows additional work performed during the year:

Applications for cancellation	1,223	Accrued area leases issued	102
Entries cancelled	2,663	Provincial land sales	80
Applications for patent received	2,063	Townsite leases issued	5
Notifications of title issued	2,267	Special surface leases issued	6
Grazing permits issued	915	Licence of occupation	9
Hay permits issued	1,107	Miscellaneous leases issued	16
Cultivation and grazing leases issued	33	Assignments registered	101

The year's activities in connection with the Grazing Division showed that 82 reports were called for and 62 received. Reports outstanding on the 1st of April, 1938, numbered 45.

The following statement gives the changes in connection with long term grazing leases:

RANCH GRAZING LEASES

Fiscal Year April 1, 1937 to March 31, 1938

		Number	Area
Leases as at April 1, 1937		2,782	3,152,126.39
Leases as at March 31, 1938		2,553	3,068,811.87
Analysis			
		Number	Area
Leases cancelled		413	453,555.98
Changes in area: Removed	35,485.89		
Added	11,627.70		
			23,858.19
			477,414.17
New leases		184	394,099.65
		229	83,314.52

Consolidation of Rentals and Tax Accounts on Grazing Lands

The annual report for the fiscal year ending March 31, 1937 gave a brief outline of the work being undertaken at that time in connection with the consolidation of rental and tax accounts on grazing lands.

During the past fiscal year ending March 31st, 1938 the Department put into effect the conclusions reached after meetings with the ranchers' representatives.

The rentals had always been collected by this Department, whereas taxes had been collected by the Department of Municipal Affairs covering lands in improvement districts and by the municipal districts where same were organized.

Due to the climatic conditions under which the majority of ranchers had been operating for the past several years, the arrears of rentals and taxes on leases held from this province were considerable and it was necessary to make some adjustment in order to ease the burden on the lessees. In the year 1935 the Department had granted reductions in rental and at that time it made same retroactive to January 1st, 1933. Therefore, when the taxing authorities reported the outstanding taxes on grazing lands to this office, immediate action was taken to grant the same reduction on taxes as had been given in the case of rentals. In addition, all accumulated penalties were written off, together with any interest which had been charged on account of rentals.

Approximately 2,800 ranch accounts were adjusted and the Department communicated the results to each lessee covering his or her individual account. This information was given in a statement which set out the current charges for the year 1937, the accumulated rental arrears to December 31st, 1936, the interest on same, tax arrears to December 31st, 1936, and the penalties, which figures covered the gross amount outstanding. The remissions granted by the Department were then shown and each lessee could clearly see the net balance owing. The lower half of the statement clearly indicated the manner in which the balance was to be paid, and to assist in payment, the Department granted two periods within which to clear off the then current rental and allowed the taxes to stand over until December 15th, 1937. The consolidated arrears of rental and taxes, which had accumulated to December 31st, 1936, were set out as being payable in seven annual instalments, the first of which became due on January 1st, 1938, together with the 1938 current charges.

It is gratifying to record that many of the lessees took advantage of the terms granted and brought their accounts up to date.

Quite a few of the lessees did not hesitate to express their appreciation of the terms covering payment of their accounts and stated that they considered the

consolidation a great benefit as they now had only one account to pay and this assisted them in handling the financial end of their business. It is also to be borne in mind that, previous to the consolidation of the two charges, collections were being made by three different authorities and the cost of this work was far heavier than under the new system.

It is therefore clearly indicated that the future benefit to be derived from this consolidation will be material to the lessee, the former tax-collecting authorities and to this Department through the savings effected.

School Lands Administration

REPORT OF THE SUPERINTENDENT OF SCHOOL LANDS, J. W. STAFFORD

Report for the fiscal year ending March 31st, 1938, in connection with the administration of school lands, is submitted herewith.

In the previous Report attention was called to the amendment to the Provincial Lands Act, which gave the Minister power to give effect to any compromise, adjustment or arrangement made pursuant to The Farmers' Creditors Arrangement Act, 1934, in respect to any agreement for the sale of school lands or to any sum payable under any such agreement on account of principal and interest, or either of them.

As stated last year, no results were obtained in connection with this amendment owing to the fact that the federal government has apparently not yet seen fit to grant the Board of Review under The Farmers' Creditors Arrangement Act authority to make compromises in connection with school lands' sales.

Pursuant to the provisions of section 44 of the said Act an order in council was passed bearing date of Wednesday, May 5th, 1937, appointing a Board, during pleasure, to deal with applications for a compromise, or adjustments in connection with such sales. The Board appointed consists of the following employees of the Government of the Province of Alberta:

William Loree, Chairman of The Debt Adjustment Board,
J. W. Stafford, Superintendent, School Lands Division,
T. C. Rankine, Solicitor, Department of Lands and Mines.

Numerous meetings were held by the said Board and during the past fiscal year 694 cases were dealt with in connection with which total reductions were granted to the extent of $498,864.15 on principal, and $271,971.10 on interest.

The total net revenue for the fiscal year under review amounted to $282,469.70, being a decrease of slightly over 13% as compared with last year. Of this revenue the sum of $48,442.09 was paid on account of principal in connection with school lands' sales with the balance, $234,027.61, comprising miscellaneous moneys such as interest, timber dues, grazing, other rentals, and similar items.

The reduction in revenue is chiefly attributable to the drought conditions which existed in the south-eastern portion of the province in which many of the lands at present held under sale are located.

No general auction sales were held during the fiscal year under review and only one parcel of land was disposed of by auction sale, which comprised an area of 120.30 acres, and which was disposed of at the rate of $7.25 per acre, or at a total of $872.18.

During the year 21 grazing and cultivation leases were issued comprising a total area of 3,526.38 acres and during the same period 131 grazing and cultivation leases were cancelled, comprising a total area of 24,479.725 acres.

In connection with timber operations, 10 timber berths were disposed of by sale from which, together with other berths previously disposed of, the following material was manufactured:

6,050,613 F.B.M. of lumber,
12,716 railway ties.

A total of 565 timber permits was issued under authority of which was cut

742,494 F.B.M. of lumber,
4,122 fence posts,
150 telephone poles,
1,893 cords of wood,
16,157 railway ties,
40,000 shingles,

with small quantities of mine props, shingle bolts, lath bolts, and other products.

Timber seizures numbered 32, covering

442,980 F.B.M. of lumber,
522 railway ties,
3,905 fence posts,

with small quantities of mine props, lagging, mine ties, and other products.

In connection with hay, a total of 451 permits was issued authorizing the cutting of 4,515 tons, under authority of which 3,131 tons were cut.

Hay seizures numbered 6 covering a total of 74½ tons.

In addition to maintaining a complete set of land records and a complete filing system in this Division, the following further transactions were completed in connection with the administration of school lands:

Number of assignments registered	80	Hay permits issued	451
Cultivation and grazing leases issued	21	Timber permits issued	565
Cultivation and grazing leases cancelled	131	Timber seizures	32
Grazing permits issued	2,110	Hay seizures	6

Letters dispatched—38,740.

Mining Lands Administration

REPORT OF THE SUPERINTENDENT OF MINING LANDS, J. W. HAMILTON

The granting of leases to mining rights, the property of the crown, in the right of the Province of Alberta, is becoming a matter of increasing importance and complexity.

During the past fiscal year the greatest activity was again in connection with petroleum and natural gas leases. However, the major mining industry of the province is still the mining of coal, but if the number of producing oil wells continues to increase as evidenced during the year under review, this supremacy may not be long maintained.

The quantity of coal produced during the 1937 calendar year is officially recorded as 5,551,682 tons, petroleum 2,796,908 barrels, sand and gravel 1,040,822 tons, sodium sulphate 42 tons and bituminous sands 35 tons.

The total value of minerals produced in the province during the calendar year as reported by the Dominion Bureau of Statistics, was approximately $25,328,640 of which amount coal produced was valued at $14,434,969 and petroleum, $4,913,960, the balance being made up of natural gas, cement, lime, sand, gravel, stone and clay products.

All mineral rights, solid, liquid and gaseous, the property of the crown, are disposed of by lease, licence, permit or reservation for limited periods of time and not by sale, and the Mining Lands Division is charged with the administration of regulations governing these rights on both provincial and school lands. The sources of revenue are fees, rentals, bonuses and royalties, and from these sources there was collected during the fiscal year the sum of $893,588.57, an increase of $22,876.41 over the previous year.

The enormous increase in the production of crude oil in the Turner Valley field, with the consequent increase in petroleum royalty, accounts for most of the increase in revenue. Compared with a total of $108,935.28 for last year, the petroleum royalty revenue for this fiscal year amounted to $273,524.10 being made up of $249,266.53 royalty on provincial leases and $24,257.57 on school leases. The royalty paid on school lands' leases shows a very marked increase, having risen from last year's total of $614.09 to the present total. A reduction appears in the total amount received on account of petroleum and natural gas lease fees and rentals. This is due to an abatement in the leasing activity and also to the relinquishment by lessees of the rights acquired the previous year.

The following tabulations show the numbers and acreage of the various leases issued from October 1st, 1930, the date the natural resources were transferred to the Province of Alberta, to March 31st, 1938.

Type of Lease	Active at date of transfer	Issued	Divided	Cancelled	Renewed	Active at March 31st, 1938
Petroleum and natural gas, provincial lands	16,899	5,720	132	16,716	123	5,912
Petroleum and natural gas, school lands	1,964	699	4	2,060	1	606
Petroleum and natural gas, crown reserve	5	20	.....	25	.....	.....
Coal, provincial lands	620	302	2	457	91	376
Coal, school lands	60	23	.....	42	7	34
Quarrying	45	32	.....	31	.....	46
Quartz mining	4	.....	.....	.....	.....	4
Salt and gypsum	1	1	.....	1	.....	1
Bituminous sands	4	.....	.....	3	.....	1
Miscellaneous	1	3	.....	.....	.....	4
Dredging	32	4	.....	32	.....	4
TOTALS	19,635	6,804	138	19,367	222	6,988

ACREAGE CONTAINED IN ABOVE LEASES

Type of Lease	Active at date of transfer	Issued	Cancelled	Renewed	Active at March 31st, 1938
Petroleum and natural gas, provincial lands	2,263,076	991,970	2,250,651	15,896	988,499
Petroleum and natural gas, school lands	191,727	87,426	207,200	420	71,533
Petroleum and natural gas, crown reserve	6,160	22,561	28,721	.....	.....
Coal, provincial lands	236,984	107,057	162,107	71,964	109,970
Coal, school lands	9,570	2,300	5,179	1,464	5,227
Quarrying	1,675	522	697	.....	1,500
Quartz mining	182	.....	.....	.....	182
Salt and gypsum	200	6,721	200	.....	6,721
Bituminous sands	3,952	.....	3,643	.....	309
Miscellaneous	3,560	323	.....	.....	3,883
TOTALS	2,717,086	1,218,880	2,658,398	89,744	1,187,824
Dredging (in miles)	145	12	137	.....	20

Statement of Business Transacted, 1937-38

PETROLEUM AND NATURAL GAS

	Number	Acres
Petroleum and natural gas leases issued on provincial lands	1,413	388,728.80
Petroleum and natural gas leases issued on school lands	210	30,345.60
Petroleum and natural gas leases cancelled and relinquished on provincial lands	704	103,815.81
Petroleum and natural gas leases cancelled and relinquished on school lands	84	8,492.83
Petroleum and natural gas leases cancelled under crown reserve regulations	14	15,280
Permits to prospect issued	29	588,437
Permits to prospect cancelled	59	1,037,462.78
Petroleum and natural gas reservations issued	8	221,691
Petroleum and natural gas reservations cancelled	1	45,168
Assignments registered	740	

Fees, rentals and bonus collected	$320,199.14
Royalties collected	273,524.10
Total	$593,723.24

COAL

	Number	Acres
Coal leases issued on provincial lands	29	4,852.50
Coal leases issued on school lands	3	658
Coal leases cancelled and relinquished on provincial lands	56	5,158.83
Coal leases cancelled and relinquished on school lands	2	348

Fees and rentals collected	$119,808.71
Royalties collected	173,386.26
Total	$293,194.97

MISCELLANEOUS

	Number	Authorize Removal of
Permits to collect bitumen	1	
Leases to extract glauber salts	2	
Domestic coal permits issued	34	888 tons
Quartz mining claims granted	1	
Quartz mining certificates of work issued	3	
Quartz mining certificates of partnership issued	Nil	
Powers of Attorney (quartz) registered	Nil	
Placer claims granted	4	
Powers of Attorney (placer) registered	Nil	
Bar-digging permits issued	Nil	
Sand, stone and gravel permits issued	21	9,310 cu. yds.

Petroleum and Natural Gas

Development of Leases.—Expenditures incurred in actual development of petroleum and natural gas rights acquired under lease, permit or reservation may, under the regulations, be accepted in satisfaction of rentals which should otherwise be paid in cash, and under this provision, rentals due the crown amounting to $240,667.53 were satisfied by such expenditure and so reduced the revenue of the Division to that extent. The total rental revenue received in cash was $320,199.14, which, added to the expenditure accepted in lieu of rental, makes a total of $560,866.67 chargeable to fees and rentals.

Disposal by Public Tender.—The provision of the regulation for the disposal at auction of petroleum and natural gas rights in areas comprised in cancelled leases has resulted in payment to the crown of bonuses amounting to $11,196.55 during the last fiscal year. Of this amount, $11,151.45 was bid and paid on provincial land rights, and $45.10 on school land rights.

Number and Area of Leases.—During the year 1,623 petroleum and natural gas leases were issued, comprising an area of 419,074.40 acres, of which 1,413, comprising 388,728.80 acres, represented rights on provincial lands and 210, comprising 30,345.60 acres, rights on school lands.

The province has issued since October 1st, 1930 a total of 6,439 leases, comprising 1,101,957 acres, and the Department of the Interior transferred to the province 18,868 leases comprising 2,460,962.48 acres.

Of this total 6,518 leases are now active comprising an area of 1,060,032 acres of which leases rights on provincial lands total 5,912, and those on school lands, 606, containing respectively 988,499 and 71,533 acres.

Prospecting Permits.—The regulations covering the issue of permits to prospect for petroleum and natural gas rights, the property of the crown, which were established by Order in Council, No. 671/31, were rescinded on the 7th of September, 1937, by Order in Council, No. 1027/37.

Under these regulations 29 permits, comprising 588,437 acres, were issued during the year and 59 permits, covering 1,037,463 acres, expired or were cancelled. The total issued while these regulations were in effect was 144 permits comprising 1,333,507 acres.

Petroleum and Natural Gas Reservations.—Regulations covering the reservation for geological examination of petroleum and natural gas rights, the property of the crown, were established by Order in Council, No. 1026, dated the 7th day of September, 1937.

Under the terms of these regulations, a reservation may be granted an applicant if he presents a satisfactory prospecting programme to be undertaken and provided that the information to be obtained will be of value to the Department. The minimum area which may be reserved in this manner is 10,000 acres, and the maximum area 50,000 acres. A charge of five cents an acre is made for a reservation of petroleum and natural gas rights for geological

examination. The period covered by the reservation is 45 days. During this period certain definite information must be furnished to the Department as to the employment of qualified personnel to complete the examination, and evidence of the financial ability of the applicant to undertake the work. If all these requirements are properly met, the reservation may be extended for a further 45 days to enable the applicant to proceed with actual field work.

Should the examination be of such a nature as to require a longer period to complete the work properly, the applicant under certain definite conditions, may obtain a further three months' extension to complete the investigation and to supply a full report with a record of work to the Department, together with logs of all test wells drilled. If the work and reports are found upon examination to be satisfactory, the applicant is privileged to lease the reserved area under the petroleum and natural gas regulations.

Right of Entry.—Regulations under Order in Council, No. 492/34, prescribing conditions under which the right of entry may be obtained upon land, were rescinded by Order in Council, No. 567/37, and new regulations have been established containing provisions for application for right of entry to be made to a judge of the judicial district in which the land is situated, instead of, as heretofore, before the Board of Public Utility Commissioners.

Coal

The history of the disposal of coal rights, the property of the crown is briefly as follows. Before the year 1887 coal rights were granted with the surface rights. Between 1887 and the year 1901 coal rights were sold outright at prices ranging from seven to ten dollars per acre, with twenty dollars as an upset price for anthracite deposits. Some parcels were sold by public auction. From April 6th, 1901 to March 4th, 1907 the practice of selling continued at the above prices but the sales were made subject to a royalty of ten cents per ton on the quantity of coal mined, which royalty was later reduced to seven cents per ton. Since March 4th, 1907, rights have been disposed of by terminable lease at a rental of one dollar per acre per annum and a royalty of five cents per ton.

During the fiscal year, coal mining leases were issued as follows:

	Number	Acres
Provincial lands' underrights	29	4,852.5
School lands' underrights	3	658

The number of coal leases active at the end of the year was 410, comprising 115,197 acres. The following quantity of coal, subject to crown royalty, was mined during the year:

On—	
Provincial lands' coal leases	2,336,437 tons
School lands' coal leases	300,118 "
Coal and mineral sales	590,842 "
Total	3,227,397 tons

This compares with 3,360,183 tons of similar coal, subject to royalty, mined last year.

New leases are granted only in cases of extension of existing operations or in the few instances where the locality in which the area applied for is so situated that it cannot be supplied economically from existing mines.

Coal for Domestic Use.—Permits to mine coal for domestic use are issued for a fee of $1.00 together with a royalty of ten cents per ton. These permits terminate on the 31st day of March in each year and are limited to a maximum area of one acre.

The total number of permits for the year was 34. The amount of coal extracted under these permits for the year was 888 tons.

During the past 30 years, the following crown royalties have been collected from coal lands in the Province of Alberta:

Fiscal Year	Royalty Paid	Fiscal Year	Royalty Paid
1907-1908	$ 7,621.67	1924-1925	148,979.10
1908-1909	5,322.39	1925-1926	188,277.94
1909-1910	153,559.98	1926-1927	218,150.10
1910-1911	218,932.88	1927-1928	231,757.96
1911-1912	104,894.55	1928-1929	254,616.27
1912-1913	142,997.79	1929-1930	248,083.71
1913-1914	147,198.75	1930-1931	105,126.51
1914-1915	104,489.77	1931-1932	145,170.33
1915-1916	67,190.17	1932-1933	143,800.01
1916-1917	149,447.82	1933-1934	193,527.82
1917-1918	144,634.75	1934-1935	176,122.43
1918-1919	175,687.66	1935-1936	186,691.23
1919-1920	181,641.80	1936-1937	193,810.33
1920-1921	190,545.80	1937-38	173,386.26
1921-1922	185,436.88		
1922-1923	171,723.83	Total	$4,969,216.02
1923-1924	210,389.53		

Bituminous Sands

There is still under reservation in the McMurray district an area of 15,000 square miles for the purpose of bituminous sand development. This area is of the greatest richness in bitumen and has the least overburden. There are two companies operating in the area under special development agreements and one company operating on a lease. The lease comprises 309 acres.

Quartz Claims

The granting of quartz mining claims is subject to an annual expenditure for development work. With the establishment of satisfactory progress and the proper survey of the claim a lease is issued for a period of twenty-one years, the products recovered being subject to payment of royalty.

During the year one quartz mining claim was recorded. Four quartz mining leases comprising 181.8 acres are still active.

Quarrying

Quarrying leases on crown lands are issued under the regulations for limestone, granite, slate, marble, gypsum, marl, gravel, sand, clay, volcanic ash or any building stone.

A total of 46 quarrying leases was active at the close of the year and these covered 1,500 acres.

Sodium Chloride (Common Salt)

As reported last year a lease for the extraction of sodium chloride was issued for a period of twenty-one years. This lease was issued following a permit to explore and prospect for salt in townships 88 and 89, ranges 8 and 9, west of the 4th meridian.

The permittee had conducted boring operations on legal subdivision 1 of section 10, township 89, range 9, west of the 4th meridian, and at a depth of 694 feet discovered a very high grade salt which continued to a depth of 893 feet, thereby disclosing a salt of a thickness of 199 feet. The permittee had expended a considerable amount of money on this work and for his discovery after a thorough investigation of the expenditure in actual drilling, he was granted drilling credit which was applied in part satisfaction of the first year's rental of the salt lease.

The lease comprises 6,720.82 acres and is subject to the regulations governing the disposal of salt rights. Under the terms of these regulations rental has to

be paid at the rate of fifty cents per acre for the first year and one dollar per acre for each subsequent year. Plant and machinery has to be installed within a year and certain definite quantities of salt must be produced, and a royalty of twenty cents a ton paid on all production.

The drilling of a production well on legal subdivision 2 of section 10, township 89, range 9, west of the 4th meridian, was started in January, 1937, and completed on November 11th, 1937 at a depth of 702 feet, salt having been encountered at 695 feet. Erection of a plant had been started in 1936 and was sufficiently completed by January, 1938 to make test runs of ordinary coarse salt for farmers use and certain coarse grades for packing plants.

Some experimentation and further construction will be necessary before the plant will be equipped to produce the finer grades of salt on a commercial basis. Several car-loads of lumber and concrete have been used in construction and a number of workmen employed in the establishing of what gives promise of becoming a new Alberta industry.

Dredging

At the end of the year, four dredging leases were active. These leases comprised a twenty mile stretch of the McLeod River, but no dredging operations up to the close of the fiscal year had been conducted on them.

Miscellaneous Leases

Two special leases are in force which were issued for the removal and disposal of sodium sulphate (glauber salts), which occurs in a comparatively pure condition and in the form of a natural accumulation in certain sloughs and shallow lakes. Both leases were issued for a period of five years and comprise a total of 32.56 acres.

During the year there was extracted a total of 42 tons of glauber salts on which royalty was paid at the rate of 25 cents a ton.

Special Permits

There was in force during the year one special permit for the collecting of bitumen issued from a northern well, situated in the vicinity of Peace River. These rights were disposed of by public tender to the bidder offering the highest royalty. During the year a total of 437 gallons of bitumen was extracted.

In addition to the general work of the Division numerous letters were received requesting information on the province's natural resources. These required considerable investigation and a great deal of work. A number of copies of printed regulations and other material was despatched in answer to enquiries.

Technical Division

REPORT OF THE SUPERINTENDENT OF THE TECHNICAL DIVISION, T. W. DALKIN

Notifications (*Land Patents*).—During the fiscal year ending March 31st, 1938, 2,266 notifications were issued, covering a total area of 382,382.437 acres. These figures reveal the period under review as taking second place to the peak year of 1935-36 when 2,965 notifications were issued for a total area of 433,529.126 acres. Included in these are 56 notifications granting titles to 101 lots in government townsites and in other townsites where lots were transferred to the jurisdiction of this Department from the Department of Municipal Affairs through tax recovery proceedings.

Details of the notifications are as follows:

Nature of Grant	Notifications	Area (Acres)
Homesteads	1,462	228,067.381
Second homesteads	506	78,157.491
Sales (including lots in subdivisions)	105	2,120.087
School lands' sales	73	9,650.948
Special grants	51	52,701.885
Soldier grants	43	7,078.800
Exchange of lands	10	3,800.880
School lands' grants	10	31.035
Pre-emptions	3	481.000
Half-breed grants	1	160.000
Purchased homesteads	1	132.910
Northern Alberta Railway Company	1	0.020
TOTALS	2,266	382,382.437

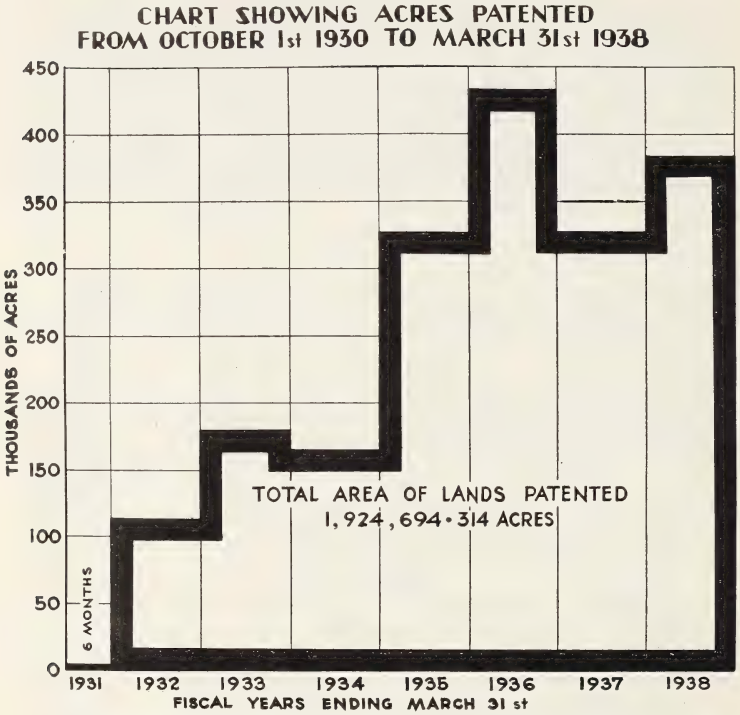
Details of Sales in Subdivisions	Notifications	No. of Lots
Coleman	13	24
Peace River Landing Settlement	8	22
Canmore	7	7
Bellevue	5	5
Carbondale	2	2
Jarvie	3	3
Hillcrest	1	2
Tilley	1	2
Walsh	1	1
Maple Leaf ((7242 AI)	7	16
Maple Leaf (6224 Y)	5	11
Maple Leaf (6632 Y)	1	1
Maple Leaf (2107 A.A.)	1	5
McMurray Settlement (Plan 7518 A.K.), Portion, Block "X"	1	....
TOTALS	56	101

		Area
Exchange of mineral rights with the Manitoba South Western Colonization Railway Company	1	310 acres

One of the special grants was issued in favour of the Dominion of Canada as represented by the Minister of Mines and Resources. Under clause 10 of the Agreement between the dominion and provincial governments, dated the 14th of December, 1929, relating to the transfer of the natural resources, the Superintendent-general of Indian Affairs made application for certain lands in order to fulfil the dominion's obligation to the Chipewyan Indians. An Order in Council, Number 1339/37 was accordingly passed on the 22nd day of November, 1937, which gave authority to set aside and vest title in the dominion government certain areas comprising 52,398.20 acres, excepting mines and minerals. Notification or land patent was issued on the 20th of December, 1937, covering these areas which extend at different intervals along the Athabaska River from township 102, northerly to the main reserve where the Athabaska River enters Lake

Athabaska, and are now dedicated as Indian Reserves, Numbers 201, 201A, 201B, 201C, 201D, 201E, 201F and 201G.

Since the transfer of the resources almost 2,000,000 acres of land have been patented and in this connection the graph included in this section of the Report will prove interesting.



Homestead Entries.—During the year, 1,479 homestead entries, 111 second homestead entries and 10 soldier grant entries were checked as to acreage and exceptions were made whenever necessary for railway rights of way, roadways, power transmission lines, pipe-lines and other previously alienated parcels of land. Where homesteads were affected by rivers the fordableness of same was checked before entries were granted to the land on both sides of the water.

Lands Transferred from the Dominion to the Province.—As a result of representation made from this Department to Ottawa, the following lands were transferred from dominion to provincial control:

(1) Privy Council Order, No. 239, dated the 31st of January, 1938, transferred all mines and minerals (precious and base) in those portions of the west half of section 26, in township 18, range 22, west of the 4th meridian, which lie to the west of the western limit of Lake Mcgregor Reservoir, containing 246.37 acres, more or less.

(2) Privy Council Order, No. 379, dated the 23rd day of February, 1938, transferred all the dominion interests remaining in River Lot 12, Peace River Landing Settlement, including all mines and minerals (precious and base).

(3) Privy Council Order, No. 218, dated the 10th of February, 1938, transferred the following lands, including mines and minerals (precious and base) to the province:

> Firstly: Lots 1 to 26 in block 1, lots 1 to 31 in block 2, lots 1 to 28 in block 3, lots 1 to 25 in block 17, all inclusive, and the lanes in said blocks 1, 2, 3 and 17, respectively, and all the streets and avenues lying south-westerly of block 18 and the production north-westerly of the north-easterly limit of said block 18, all according to a plan of part of the City of Calgary, in the Province of Alberta, of record in the Land Titles Office for the South Alberta Land Registration District as "Calgary 6440 A.M." and
> Secondly: Villa lots 5, 6 and 7 in the north half of section 14, township 24, range 1, west of the 5th meridian, in the said province, as shown upon a plan of survey of villa lots at Calgary, approved and confirmed at Ottawa on the 21st of October, 1910, by Edouard Deville, Surveyor-general of Dominion Lands, and of record in the Department of Mines and Resources.

Re-vested Soldier Settlement Board Lands.—Only three parcels of land administered by the Government of Canada under The Soldier Settlement Act were transferred to the province for administration, in accordance with the following Privy Council Orders:

1. Privy Council Order, No. 2458, dated the 6th day of October, 1937, transferred the fractional north-east quarter of section 21, township 66, range 13, west of the 4th meridian.

2. Privy Council Order, No. 136, dated the 19th day of January, 1938, transferred the south half of section 2, township 84, range 25, west of the 5th meridian.

3. Privy Council Order, No. 617, dated the 28th day of March, 1938, transferred the south-east quarter of section 12, township 32, range 6, west of the 5th meridian.

Roadways.—Plans of surveyed roadways recorded in this Division numbered 143 and affected 485 parcels of open or alienated unpatented crown lands. In cases of alienated lands the usual quit claims were obtained and compensation exacted.

Licences of Occupation.—Amongst licences of occupation issued was one in favour of the Dominion of Canada for a wharf site, which is located on the shore of Round Lake, in legal subdivision 8 of section 32, township 77, range 19, west of the 5th meridian.

Three licences of occupation were also issued in favour of the Calgary Power Company for transmission lines in township 9, range 26, west of the 4th meridian, township 38, range 1, west of the 5th meridian and township 39, ranges 6 and 7, west of the 5th meridian.

There was considerable correspondence with the Canadian Utilities, Limited in connection with a transmission line right of way which this company had been operating over the crown lands since the first of October, 1930. This year a licence of occupation was issued in favour of the company, dating back to 1930.

The Canadian Pacific Railway Company made successful application for a licence of occupation for the purpose of erecting and maintaining railway bridges over the Bow River in the north-west of section 32, township 24, range 8, west of the 5th meridian, and over the Kananaskis River in the north-west of section 33, township 24, range 8, west of the 5th meridian.

A licence of occupation was granted to Alex McLeod of Conklin for a trail, 16½ feet in width, for the sole purpose of the licensee to transport fish from Winefred Lake at a point in township 75, range 5, west of the 4th meridian over available crown lands to Conklin in township 76, range 7, west of the 4th meridian.

An Order in Council, Number 69/38 was passed on the 18th of January, 1938, in order to grant J. Joseph Doyle a licence of occupation to build, construct, operate and maintain a road 66 feet in width over available surveyed

and unsurveyed crown lands from McMurray to the south shore of Lake Athabaska.

Addition to Indian Reserves.—An application was renewed by the Department of Indian Affairs for an addition of 514 acres to Janiver Indian Reserve, No. 194, in township 80, range 5, west of the 4th meridian, claiming that the complete area to which these Indians were entitled, under Treaty, was not laid out for them.

Another application was received for an addition to the Wabiskaw Indian Reserve located in township 79, range 25 and townships 79 and 80, range 26, all west of the 4th meridian. The application was made under the provisions of section 10 of the Agreement regarding the transfer of the natural resources by the dominion to provincial control. An official from Ottawa inspected the proposed addition and finally an area of 14,434.10 acres was selected and surveyed, exclusive of existing road allowances. This matter is still the subject of correspondence with Ottawa, and has not yet been transferred.

New Surveys.—The Department has had under consideration for some time the necessity for completing the survey of the boundary between Saskatchewan and Alberta, extending from the south shore of Lake Athabaska to the north boundary of the province. A Saskatchewan-Alberta Boundary Commission was formed and met in Ottawa during February. Arrangements were made whereby the governments of Canada, Saskatchewan and Alberta would each bear one-third of the cost of the survey. This survey was commenced in March and is proceeding. The survey subdividing the fractional townships 69 and 70, range 27, west of the 5th meridian was completed, but township 70, range 27, west of the 5th meridian, included in the same program, was only partially executed, due, it is understood, to the severity of the winter weather. Final plans of survey subdividing the west half of township 69, range 6, west of the 6th meridian, and parts of township 76 in ranges 12 and 13, west of the 6th meridian, were received from the Director of Surveys. Final survey plans of the subdivision of the lands, occupied by squatters at McLennan on the north-east quarter of section 29, township 77, range 19, west of the 5th meridian, were recorded in the Land Titles Office in order that notifications might issue to the purchasers of the lots.

The old survey of the row of sections adjoining the 5th meridian in township 48, range 28, west of the 4th meridian, was found to be in error, and a new survey was authorized and finally corrected plans were received. Final plans of smaller surveys were received from the Director of Surveys, affecting the north half of section 26, township 58, range 10, west of the 4th meridian, and the south-west quarter of section 7, township 46, range 5, west of the 5th meridian.

Soil Surveys.—An area of land known as the Coutts Quarantine Reserve in townships 1 and 2, range 15, and township 1, range 16, west of the 4th meridian, formerly held by the dominion government, was the subject of many enquiries, with the result that a soil survey of this area was made, in order that a decision could be arrived at as to the best method of its disposal or administration.

A scheme was advocated for the settlement of unemployed families on relief in Calgary. An area located in townships 51 and 52, range 12 west of the 5th meridian was selected, and a soil survey made as to its possibilities, but no definite action appears to have been taken in the way of settlement.

New Geological Map.—The new geological map, scale 16 miles to the inch, referred to in last year's annual report, was completed and 4,000 copies were printed. The demand for this map must have been very gratifying to Dr. J. A. Allan of the Department of Geology of the University of Alberta. Applications

for copies of this map have been received from all over Canada and the United States, as well as from the British Isles. As far as Alberta is concerned, the demand from educational authorities alone seems to have justified its publication.

Calgary and Lethbridge Agency Map, Scale 12½ Miles to the Inch.—A reissue of this map was published, and 5,000 copies were printed.

General.—At the beginning of this year four draftsmen were still assigned to cope with the records, due to activity in the Turner Valley and other oil fields of the province. Apart from the general drafting to take care of requirements of the various divisions of this Department, contact and co-operation were maintained with the other departments of the government. In this regard it may be mentioned that plans, charts and reports were prepared of data for submission to Ottawa on the Provincial-Dominion Relations.

A beginning was made of the new set of plan records showing the disposition of each township in the province. On account of the magnitude of this job, it will take some years to complete. Such records, however, will be of immense value to the Department and it will then be possible at a glance to ascertain the disposition of any land in the province which may be the subject of enquiry, with its relationship to adjoining lands.

Plans were prepared of a number of areas in order to give consideration to the advisability of making them available for settlement. These plans showed the land classification, where this information was available from the Division's records, and also the disposition of the occupied lands. Many plans of large areas which showed the extent of grazing leases, were made for inspectors.

This Division carries a varied stock of maps, and it has been encouraging to watch the steady and increased interest in the many publications which are available for distribution. Mail enquiries are received from many countries and tourists call from points as far distant as Mexico. Maps for hunting trips, prospecting purposes and other usages are included in the many and different requirements which are continuously being supplied by this Division.

Petroleum and Natural Gas

REPORT OF THE DIRECTOR OF PETROLEUM AND NATURAL GAS, C. W. DINGMAN

During the fiscal year 1937-38 Alberta passed from an importer of oil to an exporter. Taking figures for the calendar year, it was found that for 1937 there had been a demand for oil in the province of some 2,625,000 barrels, including refining and handling losses, or about ten per cent above 1936, and a production of nearly 2,800,000 barrels, but with the rate of production increasing, so that the December rate, if continued for the full year would have yielded 4,650,000 barrels or about 2,000,000 barrels more than the requirements of the province.

The completion of several large producers made it necessary in September for the purchasers of oil to prorate their takings, owing to limited pipe-line facilities from Turner Valley to Calgary. The question of markets within economic distance of the field was also a factor. Much of the imports had been coming from Cut Bank field in Montana and some contracts for Montana oil ran to the end of 1937. The general policy of the purchasers appears to have been to run the existing pipe-lines to capacity and purchase proportional amounts of oil from all wells offering it for sale up to the pipe-line capacity. Vapour phase wells and absorption plants, yielding a comparatively small fraction of the total, were not restricted. Immediate steps were taken to increase the pipe-line capacity by the construction of an additional 6 inch line. When partly completed a portion of this pipe was put into service which increased the quantity that could be pumped. At the end of March construction was continuing and it was expected that the 6 inch line would be ready for use in May.

A list of wells completed follows. Where thirteen wells were completed in the previous fiscal year, only six of which were moderate to large producers of crude, the current year saw thirty-one wells completed, of which twenty-eight were moderate to large crude producers. All of these were in the south end of the field except one. The exception, Royalite No. 29, is at the extreme north end, and it points the way to good probability of a valuable pool in that locality, and extends the area of known crude reserves first found by Model, No. 1.

Failure to establish commercial production in Dalhousie, No. 8 and Brown, No. 3 was disappointing. The lengthy performance of Advance, No. 5A, almost midway between them, still gives hope, however, for further production in that area. Performance of Albertan Federated, when tested in June 1937, suggests that crude production may yet be found on the west flank of the oldest part of the field in sections 1 and 12, township 20, range 3, west of the 5th meridian.

TURNER VALLEY COMPLETIONS,

arranged by date of completion during the fiscal year (west of the 5th meridian)

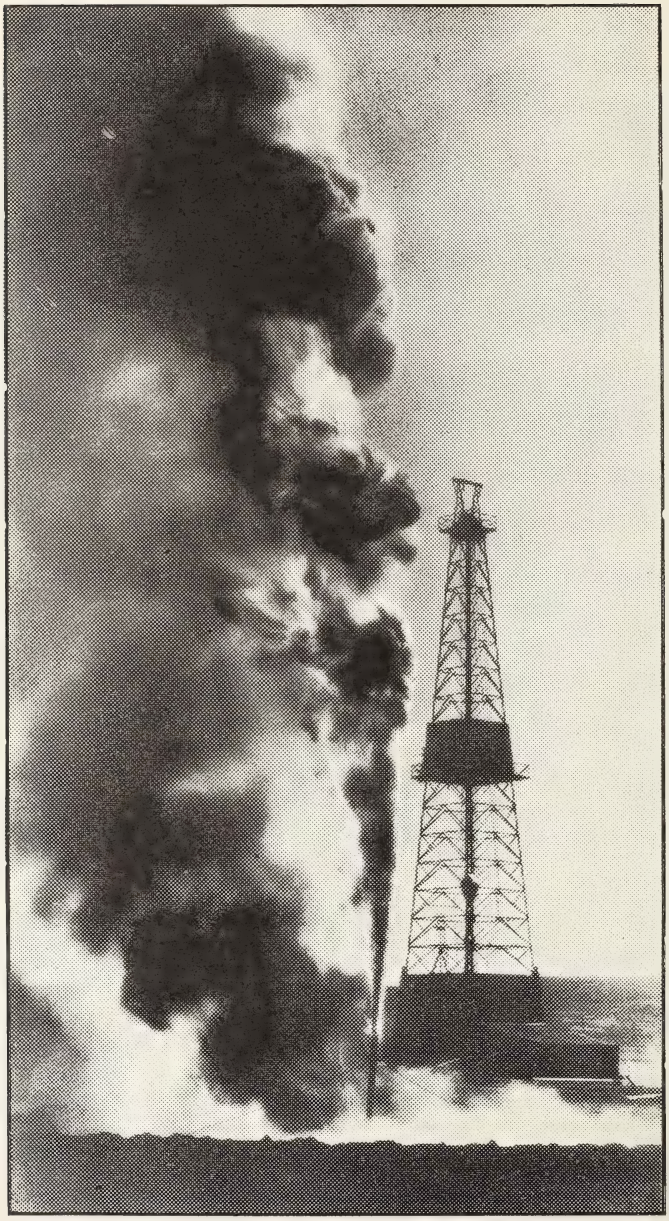
Well	*Location*	*Depth*	*Date*	*Produces*
Sterling Pacific, No. 4	*4 of 33, 18-2	7,184′	Mar. 17, 1937	Crude, small gas,
	(Inadvertently omitted from last year's report)			
Monarch, No. 1	9 of 20, 18-2	7,007′	July 19, 1937	Crude, small gas,
Sterling Pacific, No. 5	12 of 33, 18-2	7,063′	July 31, 1937	Crude, small gas,
Richland, No. 3	14 of 28, 18-2	6,075′	Aug. 20, 1937	Crude, large gas,
Davies, No. 2	13 of 21, 18-2	6,985′	Sept. 7, 1937	Crude, small gas,
Brown, No. 1	14 of 16, 18-2	6,817′	Sept. 13, 1937	Crude, small gas,
Mercury, No. 8	3 of 4, 19-2	6,023′	Sept. 23, 1937	Small, vapour phase,
Brown, No. 2	8 of 20, 18-2	6,997′	Sept. 25, 1937	Crude, small gas,
Granville, No. 1	16 of 19, 18-2	7,318′	Sept. 30, 1937	Crude, small gas,
Share, No. 1	8 of 29, 18-2	7,170′	Sept. 30, 1937	Crude, small gas,
Model Spooner, No. 1	4 of 28, 18-2	6,942′	Oct. 1, 1937	Crude, medium gas,
Four Star, No. 1	13 of 28, 18-2	7,070′	Oct. 11, 1937	Crude, small gas,
Royal Crest, No. 1	9 of 32, 18-2	7,114′	Oct. 20, 1937	Crude, small gas,
Prairie, No. 1	16 of 17, 18-2	7,315′	Oct. 21, 1937	Crude, small gas,
Commoil, No. 1	15 of 29, 18-2	7,475′	Oct. 23, 1937	Crude, small gas,
Three Point, No. 1	12 of 28, 18-2	6,963′	Oct. 29, 1937	Crude, small gas,
Firestone, No. 1	13 of 16, 18-2	6,917′	Nov. 2, 1937	Crude, small gas,
Sterling Pacific, No. 6	5 of 33, 18-2	7,117′	Nov. 14, 1937	Crude, small gas,
Westflank, No. 1	1 of 32, 18-2	7,150′	Nov. 19, 1937	Crude, small gas,
National, No. 1	8 of 29, 18-2	7,220′	Dec. 6, 1937	Crude, small gas,
Royal Canadian, No. 1	15 of 20, 18-2	7,416′	Dec. 11, 1937	Crude, small gas,
Sunset, No. 1	10 of 20, 18-2	7,475′	Dec. 20, 1937	Crude, small gas,
Westflank, No. 3	8 of 32, 18-2	6,888′	Dec. 20, 1937	Crude, small gas,
Westflank, No. 2	8 of 32, 18-2	6,973′	Jan. 10, 1938	Crude, small gas,
Brown, No. 3	1 of 19, 19-2	6,777′	Jan. 14, 1938	Not commercial,
Home-Millarville, No. 1	8 of 33, 20-3	7,600′	Feb. 2, 1938	Abandoned, crooked,
Spyhill, No. 1	16 of 20, 18-2	7,058′	Feb. 14, 1938	Crude, small gas,
Royalite, No. 28	16 of 32, 18-2	6,949′	Feb. 18, 1938	Crude, small gas,
Royalite, No. 29	2 of 27, 20-3	6,920′	Mar. 17, 1938	Crude, small gas,
Davies, No. 1	2 of 29, 18-2	7,373′	Mar. 19, 1938	Crude, small gas,
Richland, No. 2	5 of 28, 18-2	6,950′	Mar. 24, 1938	Crude, large gas,
Sunburst, No. 1	1 of 29, 18-2	7,157′	Mar. 24, 1938	Crude, small gas.

*Note:—Legal sub-division 4 of section 33, township 18, range 2.

Continued waste of gas from the older part of the field with very small financial return from the gas drawn has threatened the possibilities of full ultimate recovery of crude from the west flank. This serious threat together with the desirability of having a disinterested authority appointed as umpire in the proration of oil purchases led to the passage of an act for conservation of gas and oil resources in the province. This act, at the close of the period under review, had not been proclaimed pending the enactment of enabling legislation by the parliament of Canada, but when proclaimed it will give wide powers to a board the appointment of which is provided for in such act.

Tests of vapour phase wells were made in June, 1937, following the practice of former years. In section 20, township 19, range 2, west of the 5th meridian, where pressures were lowest in 1936, the withdrawals of gas had been moderate during the year and the pressure drop was of the order of 20 or 30 pounds for the year, with remaining pressure as observed at the surface of as low as 362 pounds. At the south end, where the large development of the year has been concentrated, drops occurred of 220 to 340 pounds for the year, with remaining closed pressure ranging from 700 to 1,130 pounds. At the far north end of the field the maximum 1937 pressure was 930 pounds, and drops of 220 to 225 pounds were noted for the elapsed year.

Some pioneer research work was done by the Royalite Oil Company, which purchased equipment for observing bottom hole pressure and temperature and made a number of tests. Bottom hole pressure observations are quite essential when there is liquid in the hole as well as gas, because the amount of liquid in the hole cannot be observed at the surface and it greatly affects the surface pressure observation. The highest bottom hole pressure reported was observed at the end of February, 1938 as 2,225 pounds per square inch. The well had been producing crude oil for over four months, and the initial bottom hole pressure was consequently somewhat higher. The bottom hole temperature was 150°F., and was somewhat higher than previous estimates had set for probable



A typical Turner Valley crude oil well coming into production

temperature. The depth of the instrument at which this pressure and temperature were observed was 7,175 feet, and surface pressure was 1,235 pounds. Some 650 pounds out of the total of 2,225 must have been due to oil standing in the hole. The temperature at the bottom is of particular interest in studies of gas reserves, since the pressure of a given mass of gas in a container of fixed capacity depends on the temperature. Perusal of temperatures observed at the bottom of various holes suggests that the temperature drops as gas is withdrawn.

Following the action of purchasers in prorating large wells, the Division was asked to test wells for potential production. In December and January a set of tests was made. At this time the procedure was to allow each well to flow at its maximum capacity for five days and take the potential on the basis of the last day's production. The information gained by this method showed that so long a test at maximum capacity was unnecessary and undesirable, and that equally valuable information would be obtained by one day's maximum flow after the well had been operated at its prorated quota regularly for ten days. The wells in all cases decreased in flow from the first to the fifth days of unrestricted flow, and it was agreed by all concerned that two-thirds of the production obtained on the first day of unrestricted flow would be a fair figure to use for potential. It was planned to use this procedure in succeeding potential tests.

Drilling Activity Outside Turner Valley

New Valley, No. 1, just east of the north end of Turner Valley, drilled to 8,450 feet with standard tools. Operations were suspended during the winter months.

Sentinel, No. 1 is reported to have resumed operations after some lapse of time.

Green Valley, formerly known as Banner, No. 1, drilled to 5,794 feet, finding the Madison limestone with a little water and showings of oil. Preparations were being made to run casing as soon as a fishing job was completed, and make a test for oil production at somewhat greater depth.

Moose Oils, No. 2 well was completed at a depth of 1,553 feet and produced a small amount of 47° gravity oil, but had not been produced regularly up to the end of March, 1938.

Model Oils and Canyon Oils started a joint test near Moose, No. 2, but were suspended at shallow depth.

Elbow, No. 1 reached a depth of 5,582 feet.

Roxana, No. 1, just south of the Stony Indian Reserve, reached a depth of about 3,790 feet and suspended operations during the winter.

Southend Petroleums conducted operations in the old Imperial Highwood, No. 1, carrying the depth to 5,285 feet by diamond drill before abandoning.

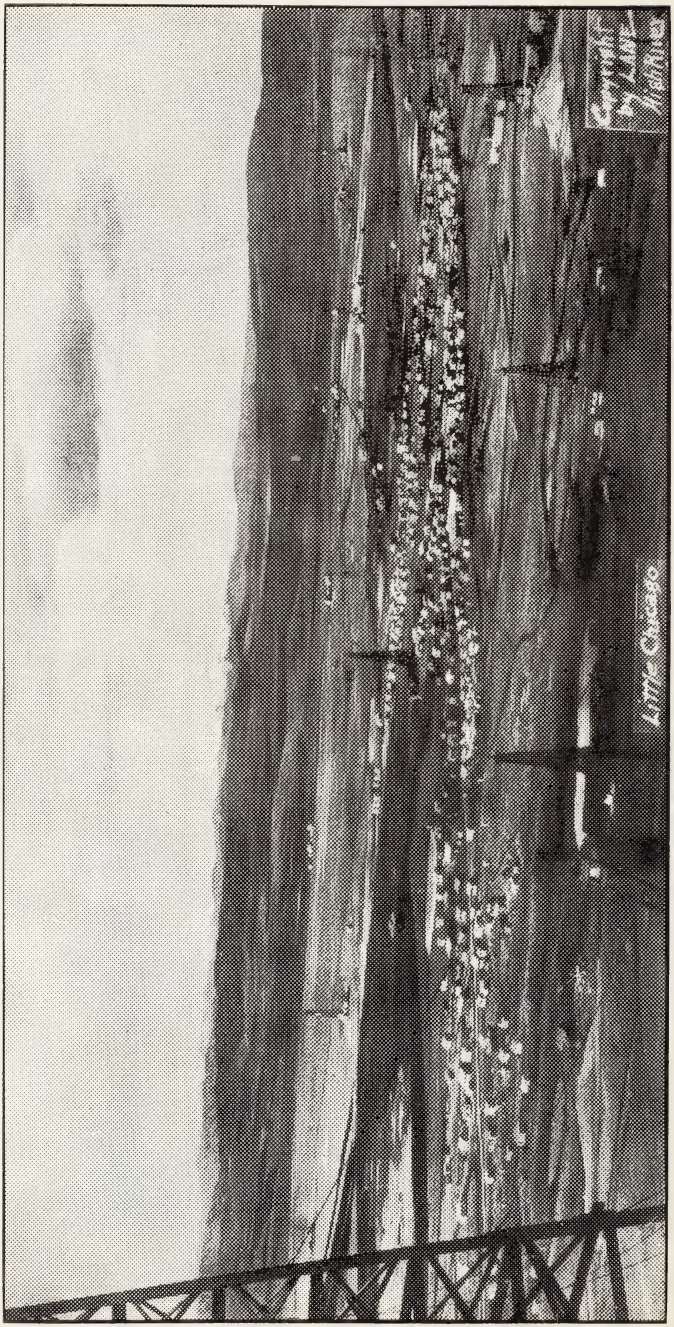
Spindletop drilled to 2,315 feet and shut down for the winer.

Hunter Valley, No. 1, in the foothills west of Olds, drilled to 8,282 feet and abandoned the hole.

Home Oils (Alberta) Ltd. started a test in the Brazeau area, on the east side of Chungo Creek in legal subdivision 16 of section 7, township 43, range 17, west of the 5th meridian, and attained a depth of 2,712 feet by the end of March, 1938. Careful geological study and aerial photos of a large area preceded the location of this interesting test.

Marjon drilled to 5,530 feet in their test north of Lundbreck.

Maxmont, in the vicinity of this well, drilled to 6,678 feet, making quite a record for standard tools of over 3,800 feet of open hole.



Little Chicago, a growing townsite in southern Turner Valley

Weymarn-Pincher Creek, No. 2 was carried to a depth of 6,420 feet in operations sponsored by the Anglo-Canadian Company.

Franco, drilling near Cardston, did a little work before suspending operations.

Lyons-McIntyre in legal subdivision 14 of section 19, township 3, range 21, west of the 4th meridian, was drilled to 3,100 feet with operations continuing.

Near Taber, Plains Petroleums abandoned their No. 1 well at a depth of 3,310 feet; drilled their No. 2 well to a depth of 3,222 feet, completing it as a fair producer of crude of about 27° gravity. Their No. 3 well was drilled to 3,435 feet without obtaining production, and two further wells are projected for the season.

Border Petroleums have made a proposal to deepen the Canadian Western Natural Gas Company's No. 6 Barnwell for a test of the Taber sand.

Lethbridge Petroleum and Refining, No. 1 was drilled to 2,215 feet in legal subdivision 12 of section 11, township 8, range 22, west of the 4th meridian.

Range, No. 3 was started not far from Range, No. 1 (Rogers Imperial) and suspended at 1, 765 feet.

Home Oils (Alberta) drilled No. 1 Coutts to 3,150 feet and abandoned. This test looked for a westerly extension of the Red Coulee field.

Anaconda started an interesting test near Steveville, drilled to 1,120 feet and shut down for the winter.

Echlin Carbon Black Company drilled a well to 418 feet in the district north of Delia, obtaining a little gas.

In the area from Wainwright east to the Saskatchewan border and north to the North Saskatchewan river, Montreal Alberta, No. 1 did some testing and drilled a little deeper, depth at the end of March, 1938 being 3,497 feet.

London Ribstone, No. 2 well was redrilled and carried to a depth of 2,189 feet. A test of an oil sand at that depth showed only a small amount of heavy oil.

Blackfoot Ribstone, No. 1 was preparing to drill near the town of Ribstone.

Battleview Oils (Sam Taylor, No. 1) was drilled to 1,893 feet in legal subdivision 13 of section 32, township 47, range 5, west of the 4th meridian, obtaining a large flow of gas in a thick sand at the Benton/Lower Cretaceous contact.

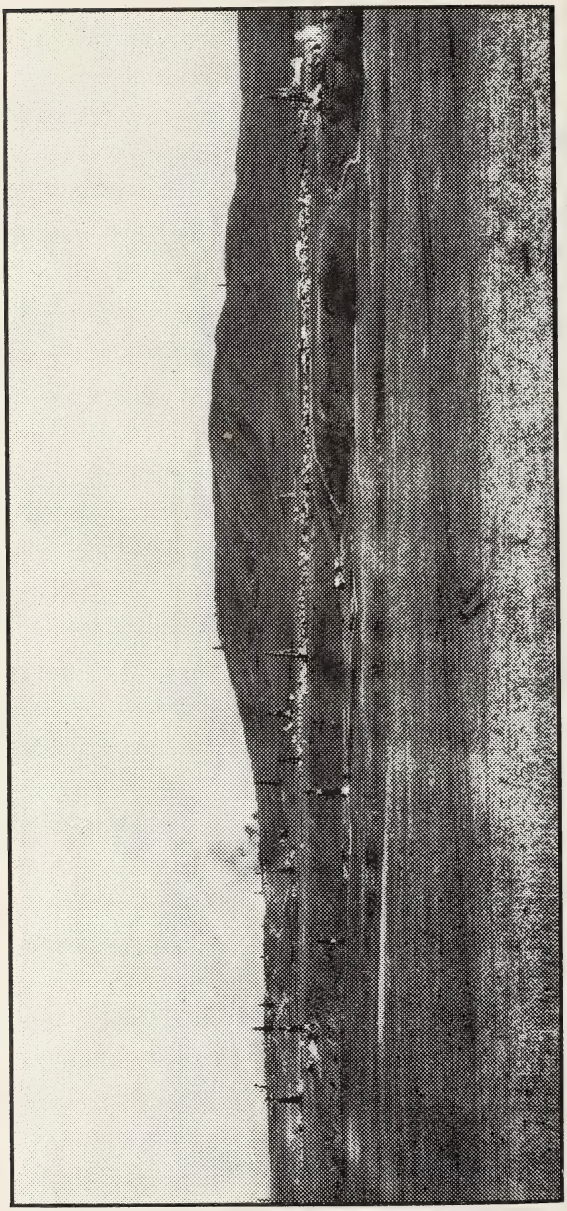
Pacalta drilled its Battleview, No. 1 in legal subdivision 3 of section 5, township 48, range 5, west of the 4th meridian (about a half-mile east of the Sam Taylor well) and at the end of March, 1938 was coring and testing sands in the Lower Cretaceous.

Altoba drilled its No. 2 Wainwright well in legal subdivision 1 of section 35, township 47, range 7, west of the 4th meridian, to a depth of 2,311 feet and at the end of March, 1938 was testing sands in the Lower Cretaceous.

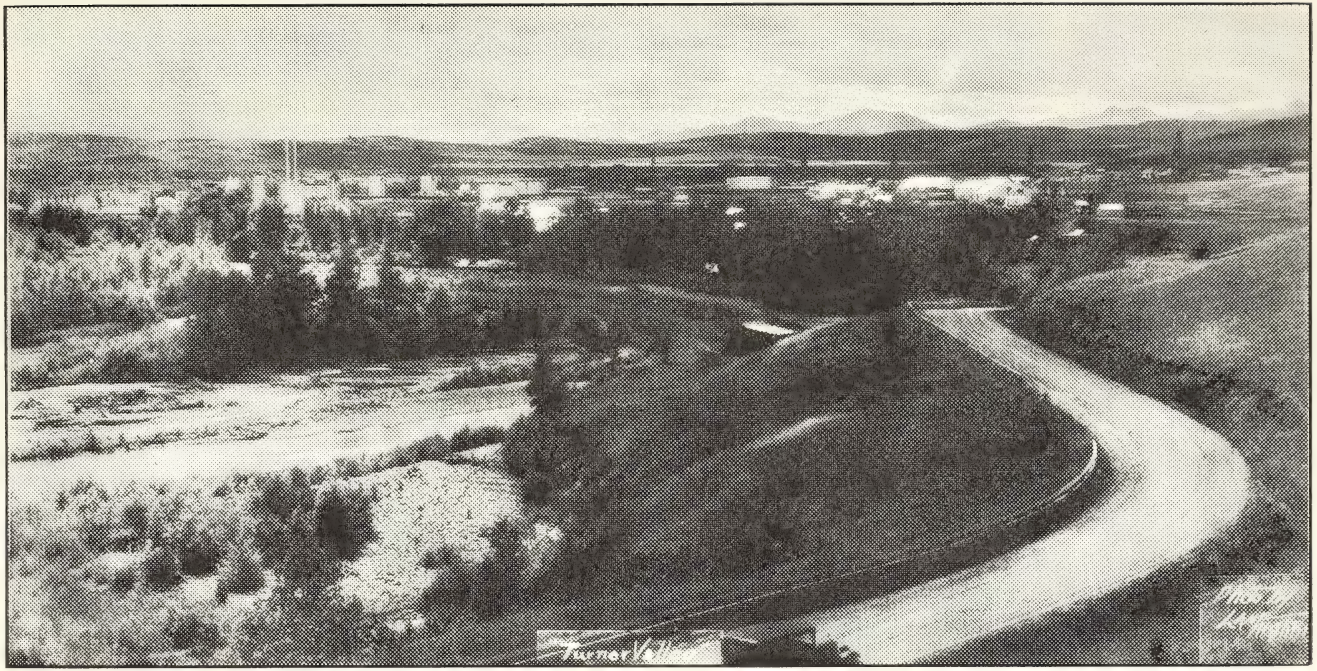
Waintown Gas and Oil Company erected a rig in legal subdivision 16 of section 26, township 50, range 7, west of the 4th meridian, about 2½ miles west of the town of Vermilion, and was preparing to drill for gas.

Dina Oil Company redrilled the former Meridian, No. 2 to 1,811 feet and started production operations, topping the oil in a small refinery at the well. Their No. 4 well was drilled to 1,710 feet where it encountered the same oil sand.

Near Pouce Coupe, the Batcheller syndicate was drilling a deep diamond-drill test, and reached a depth of 782 feet at the end of March, 1938.



Little New York, another of the Valley's townsites, situated a mile and a half south of Little Chicago



Turner Valley townsite in centre of the valley

At Waterways a well was drilled to the salt beds and commercial production of salt started late in 1937.

Manuscript has been prepared for publication of a Schedule of Wells in Alberta and it is hoped that the material will be published in 1938.

Gas Fields

Closed pressure in the Viking field averaged 553 pounds in the fall of 1937. Repressuring of Bow Island field continued, the pressure by the end of March, 1938 being 545 pounds, with a total injection since September, 1930 of 11,971,383 Mcf.

No developments in other gas fields are of sufficient importance to record save for the discovery of gas in the Battleview well above mentioned. Gas from this well was used as fuel in drilling Pacalta-Battleview, No. 1. A closed pressure of 550 pounds was reported at this well on completion, but the gauges were not tested for comparison with a standard.

Bituminous Sands

It was reported in the previous annual report that a plant had been erected near McMurray for separation of sand from bitumen. During the year work was started on the erection of a complete refinery to process the oil. The capacity of the plant for separating sand was increased, and additional equipment installed for mining. At the end of the period the plant was about three-quarters complete.

OIL PRODUCTION FOR THE FISCAL YEAR 1937-38

	Barrels	Value Estimated
Turner Valley Limestone, naphtha	145,329	$ 319,519.40
Turner Valley Limestone, crude	2,838,811	4,030,703.26
Turner Valley Limestone, natural gasoline	651,870	1,404,790.43
Turner Valley, shallow crude	10,332	15,545.49
Red Coulee, light crude	14,101	15,124.28
Wainwright, heavy crude	14,101	11,122.83
Miscellaneous	5,555	3,735.20
TOTALS	3,680,099	$5,800,540.89

As previously stated there was no sharp division in classification between the first two items above with the result that arbitrary assumptions became necessary.

Prior to the end of 1937 complete values of production were not supplied to the Department and it was necessary to make numerous estimations which were applied to gross production figures. Subsequent to that date complete values of sales were supplied. The valuations given above are reached by additions of figures which are obviously not exactly comparable and average values per barrel of the various items should be accepted with a little caution.

The quantity "barrel" consists fo 35 imperial gallons and is the same as the United States barrel of 42 U.S. gallons.

SUMMARY OF OIL PRODUCTION IN ALBERTA

By Fiscal Years

	Turner Valley Limestone	Turner Valley Shallow	Red Coulee	Wainwright	Miscellaneous	Total Barrels
1914-36	9,194,390	420,882	232,521	86,892	23,372	9,958,057
1936-37	1,403,611	11,909	16,386	15,155	600	1,447,661
1937-38	3,636,010	10,332	14,101	14,101	5,555	3,680,099
TOTALS	14,234,011	443,123	263,008	116,148	29,527	15,085,817

SUMMARY OF OIL PRODUCTION IN ALBERTA

By Calendar Years

	Turner Valley Limestone	Turner Valley Shallow	Red Coulee	Wainwright	Miscellaneous	Total Barrels
1914-35	8,902,734	417,086	227,770	84,300	23,062	9,654,952
1936	1,274,119	13,119	17,937	14,957	310	1,320,442
1937	2,756,632	10,589	13,790	13,559	2,338	2,796,908
1938 (3 months)	1,300,526	2,329	3,511	3,332	3,817	1,313,515
TOTALS	14,234,011	443,123	263,008	116,148	29,527	15,085,817

OIL PRODUCING WELLS IN THE PROVINCE

As at March 31st, 1938

	Producing	Closed in	Total
Turner Valley, oil and gas	109	29	138
Turner Valley, light crude only	5	....	5
Red Coulee	7	....	7
Wainwright	6	3	9
Miscellaneous	2	1	3
TOTALS	129	33	162

GAS WELLS NOT INCLUDED WITH OIL WELLS

Medicine Hat—Redcliff	46
Bow Island	11
Foremost	6
Milk River area	3
Viking	23
Kinsella	3
Battleview	1
Fabyan	2
Brooks	6
TOTAL	101

Numerous wells which serve only a single consumer are not included.

FOOTAGE DRILLED DURING YEAR

During the fiscal year the following footage was drilled:

Fiscal year 1937-38	Turner Valley	Foothills West of Turner Valley	Rest of Province	Total
Apr.-June	83,746	2,977	8,693	95,416
July-Sept.	90,312	3,195	16,709	110,216
Oct.-Dec.	48,467	2,053	9,395	59,915
Jan.-Mar.	85,869	1,269	7,401	94,539
TOTALS	308,394	9,494	42,198	360,086

COMPARATIVE STATEMENT OF FOOTAGE DRILLED IN WELLS

Fiscal Year	Turner Valley	Foothills West of Turner Valley	Rest of Province	Total
1930-31	112,043	14,373	88,544	214,960
1931-32	37,695	2,173	36,505	76,373
1932-33	13,812	813	21,495	36,120
1933-34	65,773	2,417	14,183	82,373
1934-35	70,555	4,850	15,163	90,568
1935-36	24,383	6,120	25,999	56,502
1936-37	70,275	8,682	38,048	117,005
1937-38	308,394	9,494	42,198	360,086
TOTALS	702,930	48,922	282,135	1,033,987
Increases this year in comparison with last	238,119	812	4,150	243,081

It will be noted that the increased activity was centred in Turner Valley and that in this area nearly 4½ times as much footage was made as in the previous year.

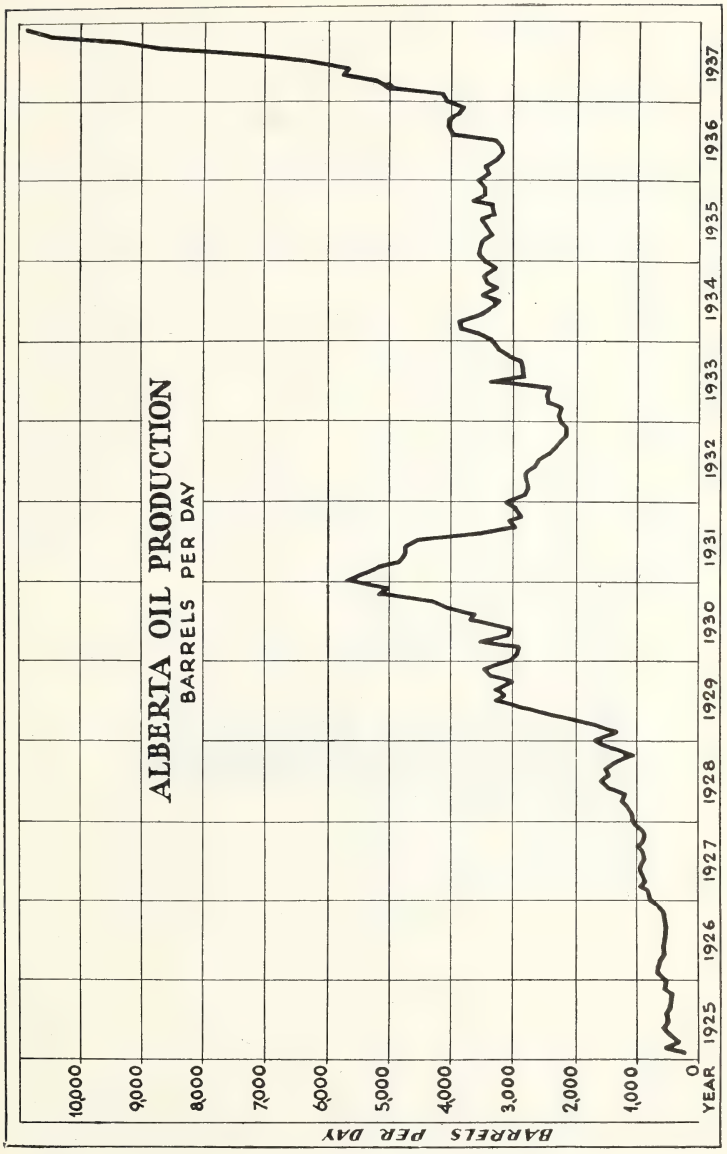
GAS USED IN ALBERTA 1937-38

Quantities in Mcf (Thousands of Cubic Feet)

From Foremost		Nil
From Turner Valley:		
Calgary-Lethbridge	6,415,030	
Refinery	1,144,509	
Stored and compressor fuel, Bow Island repressuring	1,509,555	
Bow Island town	50,700	
Field use (mostly estimated)	13,424,282	
		22,544,076
Brooks		49,533
Edmonton and towns		3,294,400
Wainwright town	104,044	
Wainwright field use (estimated)	27,600	
		131,644
Medicine Hat		2,071,123
Redcliff		698,314
Exported to Montana (includes some gas for field use in Montana)		395,723
Red Coulee, field use in Alberta		7,854
Miscellaneous, field use		19,600
TOTAL		29,212,267

ESTIMATE OF WITHDRAWALS AND WASTE OF GAS FROM TURNER VALLEY

	Mcf. Drawn	Mcf. Wasted
To end of March, 1935	717,110,000	614,050,000
1935-36	90,250,000	78,020,000
1936-37	87,000,000	74,710,000
1937-38	82,119,000	59,566,000
TOTALS	976,479,000	826,346,000


ALBERTA OIL PRODUCTION
BARRELS PER DAY
BARRELS PER DAY
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
YEAR
1925
1926
1927
1928
1929
1930
1931
1932
1933
1934
1935
1936
1937

Forestry

REPORT OF THE DIRECTOR OF FORESTRY, T. F. BLEFGEN

The fiscal year 1937-38 shows a satisfactory state of affairs with respect to the extent of timber operations and departmental revenue if considered in connection with prevailing general conditions throughout the country. Due to an augmented demand from the United States and eastern Canada for lumber and a slight improvement in market price, Alberta operators stepped up production. The improvement in market prices for lumber was not maintained and likewise the demand for forest products fell off with the result that supply yards became overstocked.

In looking beyond revenue interest for the Department and examining the situation with respect to the probable demands for a supply of lumber, it would appear that the immediate future does not hold a great promise of improvement, either in the matter of an advance in market price or an increase in the absorption power of the market.

The demand for railways ties held up very well during the year and, while a reduction in the manufacture of this product of approximately 15% is recorded, the price per tie remained steady. It may be anticipated that the demand for railway ties for maintenance purposes will become stabilized and the demand will eventually decrease to some extent due to the widespread use of creosote-treated ties and the fact that new railway construction is at a standstill.

A northern Alberta logging camp

Last year it was pointed out that the free timber allowance, which is granted in conjunction with homestead entry, was of questionable value. This view is still held but, in addition, it should be remarked that the almost continual demands for concessions in the way of large reductions in timber dues or the entire elimination of timber dues from persons who, by the good fortune of location, would be the only persons in a position to take advantage of any such reduction is not in the interest of the province at large.

Year after year the need of a greater measure of forest protection has been emphasized. This has been stressed because in many directions the forest resource is important, whether it be accessible timber of merchantable size or

whether it is potentially accessible and merchantable, or whether it is a ground cover of forest growth in remote regions. This importance is not debatable though, of course, the relative importance of various blocks of timber may be a point to consider. To realize what has happened and is continuing to happen with the passing of each fire season, it is only necessary to point out that from the season of 1931 to the conclusion of the 1937 season, it is known that 2,249 forest fires burnt over an area in excess of 1,939,661 acres, of which 1,404,859 acres carried tree growth. This latter area supporting tree growth, if in a solid block, would measure approximately 50 miles in length by 44 miles in width.

In the Annual Report covering last year's operations, it was pointed out that some of the most serious fire hazards had arisen in and adjacent to forested areas which are subject to the highest form of protection prevalent in Alberta and that, due to this coincidence, the Forest Service was in a better position to deal with the problem than had the hazard occurred in areas where organization is most elementary. The danger of such an occurrence was forecast. While the situation, with regard to which grave fears were expressed, did develop this year, in that divisions of the Northern Alberta Forest District became seriously involved, it is not with any degree of satisfaction that it is announced that the forecast became a fact. Rather is it referred to in order that the pointedness of former reports may be emphasized. There is only one remedy for a problem which to a large extent is created by the effort to change and develop lands from their wild state into lands producing agricultural crops.

Early in the fiscal year a decision of far-reaching consequence to members of the Forest Service was made in that the administration of the Game Branch was placed under the Department of Agriculture. This concluded an arrangement that had held great promise for the future and severed the direct connection between two complementary phases of administrative work. It is interesting to note here that during the year under review the officers of the Forest Service continued to spend a considerable amount of time in the interest of game administration.

The work of the staff of the Forest Service again calls for comment. In field and in office the work has been dealt with systematically, satisfactorily and as expeditiously as is humanly possible. Fire emergency naturally calls for abnormal and exhausting efforts entailing no little self-sacrifice. This necessity is pronounced under the existing provisions for field coverage and equipment supply.

The forest nursery operation at Oliver continues to be an important phase of the work carried on by the Forest Service. While the output of tree stock is small if compared with other government operated nurseries in Canada, the stock annually distributed is of sufficient quantity to be of a definite value to individuals and to government institutions.

In addition to providing a limited amount of tree stock for distribution, the nursery presents an opportunity for experimentation. This opportunity is being utilized to the extent possible in connection with the trial of species foreign to Alberta.

Forest Protection

The protection of the forests of this province should be a more positive matter than that which now exists. The protection staff rather than being expanded has been decreased during the past several years when, in reality, the hazard from various forms of human activity has increased steadily. This combination of reducing the possibility of prevention and control in the face of a mounting hazard can only result in more fires, larger fires, unchecked fires and the further destruction of large tracts of valuable forest cover. The remedy lies in the

direction of fire prevention. Under existing arrangements and circumstances, every spring, summer and fall season is potentially a serious fire season and it only remains for ensuing conditions to determine the fire situation.

Forest fire in vicinity of Antross, May 1937

Fire Season.—During the winter of 1936-37 only a normal snowfall occurred, in fact, in many sections the snowfall was light. A fairly early spring season accompanied by an almost complete lack of moisture accounts for early hazardous fire conditions and explains the early fire-fighting operations. From late April until early September there was no let up of hazardous conditions in the province though there was a shift of hazard. Thus the early hazard concerned the Edmonton and Edson divisions of the Northern Alberta Forest District and the Clearwater Forest, a division of the Rocky Mountains Forest Reserve. In late June the Grande Prairie, Peace River, Lesser Slave, and McMurray divisions of the Northern Alberta Forest District became seriously involved while those divisions formerly concerned were relieved by general rains. Midsummer and early fall were accompanied by extremely dry weather conditions across the northern part of the province as well as along the mountain and foothill region and over the Cypress Hills Forest Reserve. The fire season closed later than usual and ncessitated prolonging the seasonal employment of several members of the field staff.

Fire Prevention.—The possibilities of prevention are exploited to the extent that staff strength and the period of seasonal employment permits. It is in this direction that any large improvement is possible though little headway can be

made in the face of an increasing fire hazard and an almost annual decrease of the field staff strength. The benefits to be derived from more adequate prevention are so apparent as to make detailed discussion unnecessary. Briefly, a step in this direction would necessitate an increase of operating costs but would undoubtedly result in a decrease of fire-fighting expenditures and loss of timber through fire.

BURNING PERMITS ISSUED, PROVINCE OF ALBERTA, 1937

By the Forest Service:			
Cypress Hills	.....		
Crowsnest-Bow River	23		
Clearwater	437		
Brazeau-Athabaska	13		
By the staff of the Forest Reserves		473	
Edmonton	32		
Edson	19		
Athabaska	162		
Bonnyville	.....		
McMurray	26		
Slave Lake	107		
Grande Prairie	196		
Peace River	122		
By the staff of the Northern Alberta Forest District		664	
Sub-total		1,137	
			1,137
By Outside Agencies:			
Honorary Fire Guardians:			
Edmonton	64		
Edson	124		
Athabaska	51		
Bonnyville	33		
McMurray	1		
Slave Lake	73		
Grande Prairie	137		
Peace River	148		
Other areas	61		
		692	
Fire Guardians in Municipal Districts		791	
Royal Canadian Mounted Police		601	
Sub-total		2,084	
			2,084
TOTAL			3,221

PROSECUTIONS AND CONVICTIONS, PRAIRIE FIRES ACT, 1937

	Instituted by Forest Service	Instituted by other Agencies	Totals
Number of prosecutions	17	20	37
Number of convictions	14	19	33

Fire Detection.—In common with a desired improvement in fire prevention, the necessity for similar steps relating to detection has been regularly emphasized. The situation is so apparent and has been discussed so often that there is no need for repetition other than to report that at the end of the year under review no further improvement had been effected. Here again the use of additional funds would be involved but the resulting improvement would amply justify the additional outlay.

Fire Suppression.—The season of 1937 unfortunately vindicated the remarks contained in the Report covering 1936. In northern Alberta fires originate almost entirely as a result of some form of human activity. The population has greatly increased in this region during the last fifteen or twenty years and, therefore, there has been a steady increase or intensification of fire danger from this source. In the face of this the field staff has not been augmented to meet this danger but rather has been decreased to the extent that some important areas receive no coverage at all. The organization in strength, equipment and facilities is elementary and cannot be expected to cope with present day conditions.

Individually, the members of the field force turned in splendid work in spite of the various handicaps that faced them in the north. Fire-fighting, however, seeks to remove the effect and is almost always an emergency operation lacking

the ordinary conveniences of camp life, due often to the lack of ordinary equipment. Fire-suppression will not reach a very high level until pre-organization is possible and basically this depends on the employment of an efficient field force in sufficient strength and at the most advantageous period of the year and, in addition, the provision of equipment and facilities ahead of actual necessity.

Large destructive fires occurred over the north-eastern, north-western and central-western parts of the province, also north and north-east of Wabisca. These occurrences were in regions normally safe from large summer fires but this season the muskegs were comparatively dry and did not provide a barrier to advancing fire. Streams were low and many creeks went dry, not only handicapping crews on the fire line but in some instances creating difficulty in respect to camp location and supply.

It will be noted 375 fires were dealt with, 209 being in the large or C and D classes, and the remainder being under ten acres in extent.

The total loss is estimated at $1,088,465.95 and suppression costs, including ranger service actually expended on fires, $55,339.66.

While very hazardous conditions prevailed over the Cypress Hills and Rocky Mountain Forest reserves, it is notable that fire occurrence and loss were held to a minimum through the vigilance of the officers concerned. It should be remarked here that the regular campers who return to these regions year after year appreciate the wonderful opportunities found therein for recreation and realize fully that if their favorite camping districts are to remain attractive that great care must be exercised in the use of all forms of fire.

Causes.—The classification of fires by causes provides information as to group origin. It should be noted that the following causes are responsible for the largest number of fires and the greatest destruction, in the order given:—campers, settlers, incendiary. These three causes, together with fires of unknown origin, account for over 75% of the number of fires and over that portion of the total of the burnt over area. Some of the largest and most destructive fires became such owing to settlement clearing fires running out of control, following which some settlers in good faith set back fires to protect their property whilst others set out so called back fires for which there was absolutely no justification, the original fire joining up with these back fires, and all burning out of control which could only result in a large loss of public and private property.

Heavy smoke clouds from a forest fire in the vicinity of Antross. Cause—settlers' fires running out of control plus so-called protective back-fires not controlled

COMPARISON OF FIRE LOSSES BY PERCENTAGE

Causes	1931	1932	1933	1934	1935	1936	1937
Campers	23.7	52.8	38.9	35.4	42.3	38.3	35.9
Smokers	3.2	5.3	13.5	11.7	9.3	9.7	4.5
Settlers	21.9	17.1	17.4	17.9	8.2	11.7	20.7
Railways	6.6	4.5	2.8	5.0	10.3	4.0	9.3
Lightning	.6	2.6	5.2	7.5	1.0	14.1	2.2
Industrial operations	1.9	1.1	1.7	4.2	1.0	3.2	.8
Incendiary	15.1	8.2	11.8	11.2	22.7	10.1	13.5
Public works	1.4	.5	1.4	1.3	1.0	.4	.3
Unclassified	1.5	1.6	....	2.5	2.1	2.0	7.2
Unknown	24.1	6.3	7.3	3.3	2.1	6.5	5.6

RAILWAY FIRE LOSSES, CALENDAR YEAR 1937

This statement deals only with fires burning on forested areas under the supervision of the Alberta Forest Service, and which started within 300 feet of the centre line of the railway right of way.

Causes and numbers of fires:		
Railway causes—Locomotives	10	
Employees	6	
Sub-total	16	
		16
Other causes—Campers and travellers	8	
Settlers	4	
Unknown	2	
Sub-total	14	
		14
TOTAL		30
Number of acres burned:		
Slashing or old burn		.....
Timber land		135
Young growth		167
Not forested		268.32
TOTAL		570.32
Loss:		
Timber		$415.00
Young growth		435.00
Forest products		.....
Other property		.....
TOTAL		$850.00

ANNUAL STATEMENT OF FIRES BY CAUSES, MONTHLY DISTRIBUTION, ETC., WITHIN AND OUTSIDE FOREST RESERVES, ALBERTA—CALENDAR YEAR, 1937

Cause	Number					P.C.	Damage	Area, Acres	Monthly Distribution												Prosecutions	Convictions	Fires Inside Provincial Forests		Fires Outside Provincial Forests	
	A	B	C	D	Tot.				January	February	March	April	May	June	July	August	September	October	November	December			No.	Area Acres	No.	Area Acres
Camp-fires	44	27	38	26	135	35.9	$ 357,632.99	266,052¾	....	....	....	9	15	30	40	19	16	6	....	....	....	....	6	90	129	265,962¾
Smokers	7	9	....	1	17	4.5	262.50	253½	....	....	....	....	7	6	4	....	....	....	....	....	....	....	5	1	12	252½
Settlers	14	8	35	21	78	20.7	117,578.75	44,709¼	....	....	....	....	34	24	6	6	8	....	....	....	....	....	....	....	78	44,709¼
Railways	9	19	5	1	34	9.3	3,125.00	2,462	....	....	....	4	5	7	3	6	6	3	....	....	....	....	1	....	33	2,462
Lightning	4	3	1	....	8	2.2	421.93	216	....	....	....	....	....	1	6	1	....	....	....	....	....	....	4	....	4	216
Industrial Operations	2	....	....	1	3	.8	510.00	1,300	....	....	....	1	2	....	....	....	....	....	....	....	....	....	....	....	3	1,300
Incendiary	4	5	25	17	51	13.5	317,648.78	265,087	....	....	....	2	17	17	11	....	4	....	....	....	....	....	....	....	51	265,087
Public Works	....	....	1	....	1	.3	206.75	118	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	1	118
Unclassified	3	5	8	11	27	7.2	222,411.00	196,194	....	....	....	1	8	9	7	1	1	....	....	....	....	....	1	....	26	196,194
Unknown	2	1	9	9	21	5.6	68,668.25	58,866½	....	....	....	....	6	2	4	6	3	....	....	....	....	....	....	....	21	58,866½
TOTALS	89	77	122	87	375	100.00	$1,088,465.95	835,259	....	....	....	17	94	96	82	39	38	9	....	....	....	....	17	91	358	835,168
Per cent.	23.7	21	32.2	23.1	100							4.5	25	25.8	21.8	10.4	10.1	2.4	....	....	....	....	4.5	....	95.5	

ANNUAL SUMMARY OF FOREST FIRE LOSSES, ALBERTA—CALENDAR YEAR 1937

FIRE CAUSES	NUMBER OF FIRES: Class A	Class B	Class C	Class D	Total	LANDS AFFECTED: Ownership: Public, Acres	Private, Acres	AREA: Total, Acres	CONDITION: Merchantable Timber, Acres	Cut-over Timber, Acres	Young Growth, Acres	Not Forested, Acres	LOSS: TIMBER (MERCHANTABLE AND CUT-OVER): SALVABLE: Saw-timber, M.ft.B.M.	Other, Cords	Depreciation	UNSALVABLE: Saw-timber, M.ft.B.M.	Other, Cords	Loss	Loss of Timber	Loss of Young Growth	Loss of Other Property	Total Loss	SUPPRESSION COSTS: Ranger Service	Other Expenditures	Total	Burning Permits Issued
FIRES WITHIN FOREST RESERVES																										
Campers	3	2	1	...	6	90	...	90	5	...	44	41	...	...	...	37,500	...	$ 75.00	$ 75.00	$ 210.00	...	$ 285.00	$ 96.20	$ 210.41	$ 306.61	...
Smokers	4	1	...	...	5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2.50	...	2.50	9.26	1.00	10.26	...
Settlers	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Railways	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1.51	1.89	3.40	...
Lightning	3	1	...	...	4	...	...	...	...	...	...	...	...	...	...	...	8½	4.25	4.25	.30	...	4.55	22.55	17.88	40.43	...
Industrial Operations	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Incendiary	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Unclassified	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21.67	5.01	26.68	...
Unknown	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
TOTALS	12	4	1	...	17	90	...	90	5	...	44	41	...	...	...	37,500	8½	$ 79.25	$ 79.25	$ 212.80	...	$ 292.05	$ 151.19	$ 236.19	$ 387.38	...
FIRES OUTSIDE FOREST RESERVES																										
Campers	41	25	37	26	129	261,231¾	4,731	265,962¾	53,076½	1,314	164,223½	47,348¾	882	4,270	$2,245.50	57,812	251,903	$171,561.79	$173,807.29	$182,650.20	$ 890.50	$ 357,347.99	$ 1,191.32	$15,146.34	$16,337.66	...
Smokers	3	8	...	1	12	253½	...	253½	25	2½	17	209	...	376	235.00	...	...	...	235.00	25.00	...	260.00	83.05	177.02	260.07	...
Settlers	14	8	35	21	78	30,074¾	14,634½	44,709¼	9,507	5,395	17,463	12,344¼	6,524	2,055	2,742.10	2,554	125,587	78,581.20	81,323.30	34,114.95	2,140.50	117,578.75	460.03	6,835.85	7,295.88	...
Railways	8	19	5	1	33	2,298¾	163¼	2,462	150	5	2,042	265	...	...	...	...	770	465.00	465.00	2,660.00	...	3,125.00	11.41	197.41	208.82	...
Lightning	1	2	1	...	4	216	...	216	200	...	16	...	...	...	...	...	1,600	400.00	400.00	17.38	...	417.38	27.15	154.80	181.95	...
Industrial Operations	2	...	...	1	3	1,220	80	1,300	340	100	860	...	...	...	...	...	1,020	510.00	510.00	...	...	510.00	16.66	130.25	146.91	...
Incendiary	4	5	25	17	51	238,548	26,539	265,087	43,593	3,055	187,225	31,214	250	24,612	3,082.00	149,322	74,920	279,849.91	282,931.91	34,669.87	47.00	317,648.78	996.38	14,475.71	15,472.09	...
Unclassified	2	5	8	11	26	196,094	100	196,194	78,233	6,987	78,229	32,745	6,636	1,800	460.00	39,061	104,011	17,374.00	17,834.00	204,417.00	160.00	222,411.00	362.29	11,781.17	12,143.46	...
Unknown	2	1	9	9	21	51,614½	7,252	58,866½	7,628	8,760	11,576	30,902½	410	...	645.00	2,795	49,580	21,428.75	22,073.75	46,569.50	25.00	68,668.25	203.78	2,612.03	2,815.81	...
Public Works	...	...	1	...	1	70	48	118	81	...	37	...	...	...	...	...	446	133.00	133.00	73.75	...	206.75	...	89.63	89.63	...
TOTALS	77	73	121	87	358	781,621¼	53,547¾	835,169	192,833½	25,618½	461,688½	155,028½	14,702	33,113	$9,409.60	251,544	609,837	$570,303.65	$579,713.25	$505,197.65	$3,263.00	$1,088,173.90	$3,352.07	$51,600.21	$54,952.28	...
FIRES WITHIN AND WITHOUT FOREST RESERVES																										
Campers	44	27	38	26	135	261,321¾	4,731	266,052¾	53,081½	1,314	164,267½	47,389¾	882	4,270	$2,245.50	95,312	251,903	$171,636.79	$173,882.29	$182,860.20	$ 890.50	$ 357,632.99	$ 1,287.52	$15,356.75	$16,644.27	...
Smokers	7	9	...	1	17	253½	...	253½	25	2½	17	209	...	376	235.00	...	...	...	235.00	27.50	...	262.50	92.31	178.02	270.33	...
Settlers	14	8	35	21	78	30,074¾	14,634½	44,709¼	9,507	5,395	17,463	12,344¼	6,524	2,055	2,742.10	2,554	125,587	78,581.20	81,323.30	34,114.95	2,140.50	117,578.75	460.03	6,835.85	7,295.88	...
Railways	9	19	5	1	34	2,298¾	163¼	2,462	150	5	2,042	265	...	...	...	...	770	465.00	465.00	2,660.00	...	3,125.00	12.92	199.30	212.22	...
Lightning	4	3	1	...	8	216	...	216	200	...	16	...	...	...	...	...	1,608½	404.25	404.25	17.68	...	421.93	49.70	172.68	222.38	...
Industrial Operations	2	...	...	1	3	1,220	80	1,300	340	100	860	...	...	...	...	...	1,020	510.00	510.00	...	...	510.00	16.66	130.25	146.91	...
Incendiary	4	5	25	17	51	238,548	26,539	265,087	43,593	3,055	187,225	31,214	250	24,612	3,082.00	149,322	74,920	279,849.91	282,931.91	34,669.87	47.00	317,648.78	996.38	14,475.71	15,472.09	...
Unclassified	3	5	8	11	27	196,094	100	196,194	78,233	6,987	78,229	32,745	6,636	1,800	460.00	39,061	104,011	17,374.00	17,834.00	204,417.00	160.00	222,411.00	383.96	11,786.18	12,170.14	...
Unknown	2	1	9	9	21	51,614½	7,252	58,866½	7,628	8,760	11,576	30,902½	410	...	645.00	2,795	49,580	21,428.75	22,073.75	46,569.50	25.00	68,668.25	203.78	2,612.03	2,815.81	...
Public Works	...	...	1	...	1	70	48	118	81	...	37	...	...	...	...	...	446	133.00	133.00	73.75	...	206.75	...	89.63	89.63	...
TOTALS	89	77	122	87	375	781,711¼	53,547¾	835,259	192,838½	25,618½	461,732½	155,069½	14,702	33,113	$9,409.60	289,044	609,845½	$570,382.90	$579,792.50	$505,410.45	$3,263.00	$1,088,465.95	$ 3,503.26	$51,836.40	$55,339.66	...
SUMMARY BY DIVISIONS																										
N.A.F.D.*	75	70	118	85	348	778,321¼	53,272¾	831,594	192,743½	24,250½	461,142¾	153,457¼	14,702	17,081	$9,409.60	250,644	609,837	$570,303,65	$566,339.25	$503,662.65	$3,113.00	$1,073,114.90	$ 3,131.93	$50,015.23	$53,147.16	...
Clearwater	...	1	1	2	4	2,995	...	2,995	90	1,368	469	1,068	...	16,032	...	900	...	...	13,374.00	1,533.75	...	14,907.75	127,46	1,480.92	1,608.38	...
Crowsnest-Bow River	5	5	1	...	11	2	275	277	...	...	76¾	200¼	...	...	...	...	8½	4.25	4.25	4.05	150.00	158.30	62.45	54.25	116.70	...
Brazeau-Athabaska	9	1	2	...	12	393	...	393	5	...	44	344	...	...	...	37,500	...	75.00	75.00	210.00	...	285.00	181.42	286.00	467.42	...
Cypress Hills	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
TOTALS	89	77	122	87	375	781,711¼	53,547¾	835,259	192,838½	25,618½	461,732½	155,069½	14,702	33,113	$9,409.60	289,044	609,845½	$570,382.90	$579,792.50	$505,410.45	$3,263.00	$1,088,465.95	$ 3,503.26	$51,836.40	$55,339.66	...

*N.A.F.D.—Northern Alberta Forest District.

Personnel.—In considering the benefits to be derived from the employment of seasonal staff, it is necessary to consider not only the number employed but the relation of the period of employment to the work to be performed.

The employment of field staff by the Forest Service finds its reason in forest protection and administration. Practically all field activities complement these two major divisions of work. Protection, to be of value, must concentrate on fire prevention and the early control of such fires as occur. In addition, there is the necessity of maintaining lines of communication and other improvement projects which are vital to protection and administrative work. This preparation takes place annually and, since 1932, has centred on the spring, summer and fall seasons due to the fact that the field staff has since that year been almost entirely seasonally employed. If the present staff set up is to remain unchanged with respect to the ratio of permanent to seasonal employees, then the commencement and the period of employment should be arranged so as to secure the maximum benefits from seasonal employees.

There is nothing to add to remarks made in former reports relative to staff strength. Field coverage is absolutely inadequate.

Fire-fighting Equipment.—The equipment situation remains unchanged from that indicated in former reports. With each large fire emergency arises the necessity of emergency equipment purchases. While these are not entirely inescapable, it is a fact that preparatory purchases could be made that would not only liminate the necessity of such emergency purchases to a great extent but would in the case of hand tools and kitchen equipment result in the purchase of a supply of standardized material on a competitive basis. Distribution would then be possible prior to the actual necessity for the equipment arising.

Forest Administration

Provincial Forest Reserves.—This section of the report deals with timber disposal from the forest reserves. Compared with the immediately preceding year, the statement with respect to this item shows a considerable reduction. General economic conditions are the major influence affecting the timber industry and it is probable that a series of medium or good crop years would be accompanied by a sizeable increase in the demand for forest products.

TIMBER CUT UNDER PERMIT, ALBERTA FOREST RESERVES—FISCAL YEAR 1937-38

	Cooking Lake	Cypress Hills	Crowsnest-Bow River	Clearwater	Brazeau-Athabaska	Totals
Number of Permits	38	207	273	27	46	591
Fuelwood, dry (cords)	143	622	3,599	68	200	4,632
Fuelwood, green (cords)	....	.....	53	.....	.....	53
Mine timber, dry (lineal feet)	....	.....	431,956	82,000	72,174	586,130
Mine timber, green (lineal feet)	....	.....	.....	38,833	2,040	40,873
Mine timber (pieces)	....	.....	.....	.....	2,479	2,479
Lagging (cords)	....	.....	.....	.....	.....	.....
Lagging (lineal feet)	....	.....	205,813	37,000	.....	242,813
Fence posts	6,500	1,875	4,490	20	814	13,699
Sawlogs (F.B.M.)	....	.....	98,500	.....	.....	98,500
Round timber (pieces)	500	13,188	10,058	221	1,117	25,084
Round timber (lineal feet)	....	206	22,027	12,398	.....	34,631
Fence droppers (pieces)	....	.....	2,410	.....	.....	2,410
Telephone poles (pieces)	....	.....	1,000	.....	.....	1,000
Telephone poles (lineal feet)	....	.....	600	.....	.....	600
Mine ties (pieces)	....	.....	300	.....	.....	300
Train ties (lineal feet)	....	.....	5,000	.....	.....	5,000
Railway ties, green (pieces)	....	.....	150	.....	.....	150

Provincial Lands.—The utilization of the timber resources on all provincial lands under the administration of the Department reflected the increased demand during the year for Alberta lumber in the United States and Ontario. The total manufacture of sawn lumber from timber on provincial lands showed an

increase of approximately 40%. Unfortunately, this increased production appears not to have been justified by a maintenance of either prices or demand. Price levels at the end of the year were at a very low ebb, and generally speaking Alberta manufacturers find their yards heavily stocked with little demand in sight.

A portion of a winter cut of saw logs decked on the river bank and ready to be broken out when sufficient water comes in the spring

There were also increases in production of mine timber, lath and some other timber products, but the manufacture of railway ties, which constitutes the second most important timber product in this province, fell off by approximately 15% from the previous year's figures. Contract prices on railway ties remained unchanged from the preceding year.

Decking logs on the Freeman River in northern Alberta

The reduction of dues on lumber which was originally granted to cover material cut between October 1st, 1933 and September 30th, 1934 and later extended on two occasions, expired on September 30th, 1937. However, in view of the beneficial effect of these reductions of dues on lumber production and on employment in the industry and of the continued need of the industry for this assistance, the period has, since the end of the fiscal year now under consideration, been again extended from September 30th, 1937 to June 30th, 1939. In

addition to these reductions of dues on lumber, a reduction of 2c per tie on all No. 2 railway ties was also granted to cover the 1937-38 winter tie-making operations. This reduction has since been extended to June 30th, 1939.

There was a noticeable increase in the timber operations conducted under arrangement between this Department and the Bureau of Relief and Public Welfare. Permits under this arrangement covered the cutting of railway ties, telephone poles, bridge and culvert material and other classes of timber products. On the whole this arrangement worked satisfactorily and appears to have been of great benefit to a very considerable number of men who might otherwise have been dependent on relief.

Probably owing to the generally depressed condition of the lumber market there was little or no demand for larger tracts of timber. Regulations to govern the disposal of such larger tracts of timber have not up to the present been made effective.

Transportation looms large in the timber operators' plans. Trucks and crawler type tractors are replacing the horse on the larger operations

Crawler type tractor used on the log haul

The following table summarizes the timber business transacted at Head Office for the Edmonton District and also at the land agencies of Calgary, Lethbridge and Peace River:

	Head Office, Edmonton District	Calgary Agency	Peace River Agency	Lethbridge Agency	Totals
(a) MANUFACTURES FROM LICENCE TIMBER BERTHS:					
Number of active operations	33	8	.....	.....	41
Lumber, feet, board measure	38,782,429	4,411,535	.....	.....	43,193,964
Railway ties	13,403	11,189	.....	.....	24,592
Round timber (including mine timber), lineal feet	4,232	1,476,553	.....	.....	1,480,785
Lath	4,440,999	.....	.....	.....	4,440,999
Cordwood, cords	12	45	.....	.....	57
(b) MANUFACTURES FROM TIMBER PERMIT BERTHS:					
Number of active operations	214	18	.....	.....	232
Lumber, feet, board measure	63,372,393	2,622,113	.....	.....	65,994,506
Railway ties	747,731	25,778	.....	.....	773,509
Round timber (including mine timber), lineal feet	68,983	43,500	.....	.....	112,483
Lath	3,640,700	.....	.....	.....	3,640,700
Shingles	431,000	.....	.....	.....	431,000
Cordwood, cords	18,339	.....	.....	.....	18,339
(c) MANUFACTURES UNDER SPECIAL TIMBER PERMITS: (Sec. 40 (h) of the Timber Regulations)					
Number of active operations	138	45	.....	.....	183
Lumber, feet, board measure	2,415,792	772,771	.....	.....	3,188,563
Railway ties	96,905	31,683	.....	.....	128,588
Round timber (including mine timber), lineal feet	34,416	24,750	.....	.....	59,166
Shingles	115,000	.....	.....	.....	115,000
Cordwood, cords	141	.....	.....	.....	141
(d) TIMBER PERMITS ISSUED AUTHORIZING THE CUTTING OF MATERIAL SHOWN HEREUNDER:					
Number of permits issued	1,549	226	722	24	2,521
Lumber, feet, board measure	16,095,661	1,106,522	5,768,760	.....	22,970,943
Railway ties	31,539	630	4,500	.....	36,669
Piling, lineal feet	63,475	2,460	13,699	.....	79,634
Mining timber, lineal feet	440,893	357,876	1,000	.....	799,769
Telegraph and telephone poles	19,868	200	1,450	.....	21,518
Building logs, lineal feet	99,127	15,782	116,125	.....	231,034
Fence rails	672,482	13,350	598,755	.....	1,284,587
Fence posts	177,741	11,315	145,095	.....	334,151
Roof poles	133,145	1,950	122,000	.....	257,095
Shingles	474,000	.....	92,000	.....	566,000
Shingle bolts, cords	97	105	198	.....	400
Fuel wood, cords	6,467	2,361	1,263	194	10,285
Lath	30,000	.....	.....	.....	30,000
Guard rails	1,500	.....	750	.....	2,250

SUMMARY OF TIMBER OPERATIONS ON PROVINCIAL LANDS, 1937-38

	Licensed Timber Berths	Permit Timber Berths	Provincial Lands—Timber Permits		Forest Reserve		Totals
			Special (Sec. 40h)	Other Permits	Timber Sales	Timber Permits	
Number of active operations	41	232	183	2,521	22	553	3,552
Lumber (feet, board measure)	43,193,964	65,994,506	3,188,563	22,970,943	4,061,927	98,500	139,508,403
Railway ties	24,592	773,509	128,588	36,669	37,544	925	1,001,827
Piling (lineal feet)	.....	.....	.....	79,634	.....	.....	79,634
Mine timber (lineal feet)	1,480,785	112,483	59,166	799,769	1,596,339	879,732	4,928,274
Lath	4,440,999	3,640,700	.....	30,000	.....	30,000	8,141,699
Telegraph and telephone poles	.....	.....	.....	21,518	.....	1,030	22,548
Building logs (lineal feet)	.....	.....	.....	231,034	.....	427,975	659,009
Fence rails	.....	.....	.....	1,286,837	.....	.....	1,286,837
Roof poles	.....	.....	.....	257,095	.....	.....	257,095
Fence posts	.....	.....	.....	334,151	.....	8,404	342,555
Shingles	.....	431,000	115,000	566,000	.....	.....	1,112,000
Shingle bolts (cords)	.....	.....	.....	400	.....	.....	400
Cordwood (cords)	57	18,339	141	10,285	29,324	4,542	62,688
Number of inspection reports submitted by timber inspectors	.....	.....	.....	.....	.....	.....	2,543
Number of seizures made	.....	.....	.....	.....	.....	.....	206

Grazing

Succeeding years of drought in southern Alberta have considerably reduced the normal carrying capacity of livestock range within the forest reserves. Authorized grazing capacities were reduced where and when it became apparent that this should be done in the interest of the industry and the range. This fact, together with a reduction in the size of herds, explains the decrease in grazing business as shown in the following statement:

*GRAZING STATEMENT—ALBERTA FOREST SERVICE, 1937-38

Forest	No. of Permits	No. of Horses	No. of Cattle	No. of Sheep
Cypress Hills	59	396	2,199	.....
Crowsnest-Bow River	260	2,010	16,345	3,174
Clearwater	95	456	334	.....
Brazeau-Athabaska	115	556	43	.....
TOTALS	529	3,418	18,921	3,174

COMPARATIVE STATEMENT, GRAZING—ALBERTA FOREST SERVICE

Grazing year—	1931	1932	1933	1934	1935	1936	1937	Totals	Average
Number of permits	456	606	493	517	533	497	529	3,631	518
Number of cattle	15,041	20,086	20,230	22,557	25,097	23,407	18,921	145,339	20,762
Number of horses	3,417	3,377	3,185	2,541	2,207	2,441	3,418	20,586	2,940
Number of sheep	4,379	7,465	6,705	3,078	4,114	5,443	3,174	34,358	4,908

The granting of the privilege to utilize range forage by way of a lease or a permit does not in itself guarantee satisfactory results either to the industry or to the owners of the grazing resource. Grass or range forage replaces itself naturally, providing the complete destruction of the plants by overgrazing is avoided and also providing reseeding is permitted. The first requires that the carrying capacity for grazing purposes be carefully reviewed and a capacity set that, if fully utilized, will not result in any material reduction of plant density. The second requires a rotation of use.

Grazing capacities, period of use, manner of utilization and other related matters are all within the scope of existing management of range within the forest reserves. The grazing regulations allow adaptation to changing conditions, always with a view to protecting and ensuring the continuance of a valuable resource.

Improvements

The work of re-establishing the headquarters for the Lesser Slave and McMurray divisions of the Northern Alberta Forest District was largely completed during the year. In both cases the local staff performed the majority of this work and it is to the credit of the individuals concerned that these headquarters are now in better condition than they have been for some years. Each headquarters group is a creditable addition to the community in which it is situated. Generally speaking, the improvement work of the year was that required for the maintenance of existing projects. Fortunately the forest reserve staffs were not engaged on fire-fighting to a great extent and thus were available for important maintenance work.

IMPROVEMENT STATEMENT

NEW CONSTRUCTION PROJECTS:

Forest	Houses	Garages, Sheds, etc.	Fences	Fields (breaking in acres)	Water Supply Systems	Barns and Stables	Telephones (miles)	Corrals	Bridges	Look-out Towers	Roads	Trails (Miles)	Cabins	Fireguard Roads (Miles)	Tourist Stoves
Cypress Hills	1	....	....	....	....	....	....	....	....	....	1	....	....	1650 ft.	1
Crowsnest	1	2	....	....	....	1	....	....	....	....	2	4	....	.....	....
Bow River	4	1	....	....	....	....	....	....	....	....	....	16½	1	.....	....
Clearwater	2	....	....	....	....	....	....	1	....	....	....	....	1	.....	....
Brazeau	....	1	....	....	1	....	38	....	....	....	....	....	....	.....	....
Athabaska	....	1	1	....	....	....	....	....	....	....	....	7	....	.....	....
TOTALS	8	5	1	....	1	1	38	1	....	....	3	27½	2	1650 ft.	1

MAINTENANCE PROJECTS:

Forest	Houses	Cabins	Barns and Stables	Telephones (Miles)	Trails (Miles)	Roads (Miles)	Fences	Corrals	Water Supply Systems	Garages, Sheds, etc.	Look-out Towers and Cabins	Grounds	Hay Meadows & Pastures	Ferries	Miscel-laneous
Cypress Hills	2	1	....	....	....	....	1	....	2	1	....	1	....	....	....
Crowsnest	9	4	7	11	22	15	17	3	1	5	....	8	3	....	6
Bow River	4	13	6	12	62	9	21	5	6	5	....	14	2	....	3
Clearwater	5	14	3	8	31	1	....	....	....	1	....	....	....	....	....
Brazeau	7	5	2	9	13	....	7	....	1	....	....	4	....	....	....
Athabaska	2	8	1	5	26	3	11	....	1	....	....	1	....	....	....
TOTALS	29	45	19	45	154	28	57	8	11	12	....	28	5	....	9

IMPROVEMENTS—STATEMENT OF MAN-DAYS WORKED

NEW CONSTRUCTION PROJECTS:

Forest	Houses	Garages, Sheds, etc.	Fences	Fields (breaking)	Water Supplies	Telephones	Corrals	Barns and Stables	Bridges	Look-out Towers	Roads	Trails	Cabins	Fireguard Roads	Tourist Stoves
Cypress Hills	92½	....	....	....	....	....	....	....	....	....	1	....	....	14½	17½
Crowsnest	....	24	....	....	....	....	....	62	....	....	....	3	48	145	....
Bow River	175½	46½	....	....	....	....	....	....	....	....	....	11	6	....	....
Clearwater	39	....	....	....	....	....	7	....	....	....	....	....	....	....	....
Brazeau	....	25	....	....	40	24	....	....	....	....	....	6	....	....	....
Athabaska	....	25	1	84½	....	....	....	....	....	....	....	14	....	....	....
TOTALS	307	120½	1	84½	40	24	7	62	....	....	1	34	54	159½	17½

MAINTENANCE PROJECTS:

Forest	Houses	Cabins	Barns and Stables	Telephones	Trails	Roads	Fences	Corrals	Water Supplies	Garages, Sheds, Etc.	Look-out Towers and Cabins	Grounds	Hay Meadows & Pastures	Ferries	Miscellaneous
Cypress Hills	3	1	....	28	....	....	2½	....	7	1	....	9½	....	....	....
Crowsnest	29	40	18	146	221	95½	....	4	½	6	....	47½	10½	....	88
Bow River	47	110	19	406	456	165	206½	9½	26½	9	....	51½	14½	....	4
Clearwater	4	82	19	145	363	1	85	7	2	....	....	....	17	56	9
Brazeau	29	7	3	192½	351	....	42	....	3	....	....	33	....	....	....
Athabaska	1	45½	1	79	283	49	65	....	16	....	....	2	....	....	....
TOTALS	113	285½	60	996½	1,674	310½	401	20½	55	16	....	143½	42	56	101

Publicity

It has been repeatedly emphasized in previous reports that forest protection is largely a matter of public responsibility. By this it is meant that fire occurrence is almost entirely a matter for which the residents of the province are responsible and that a recognition of this together with a realization of the benefit of forest cover would most probably be followed by a changed attitude towards the use of fire.

An effective way to bring this about offers itself through the medium of schools, the radio and the press. A continuous campaign throughout the fire season and sustained through each season would undoubtedly produce beneficial results. Such a campaign would require careful preparation and direction which is not now possible due to staff shortage. Publicity favoring forest protection is limited at present to a few brief messages in the spring followed by the usual press reports of actual fires.

Nursery and Tree Distribution

Nursery.—The transplanting of seedlings has been carried out as in previous years at Oliver and at the subsidiary nurseries at Fort Saskatchewan and Lethbridge.

It is regretted, however, that the same high degree of success, experienced in past years, was not obtained during the period under review owing to the fact that June rains did not occur as usual. The seedlings were planted with great care but, due to the lack of rain at a very vital time when the seedlings were

Crab-apples at Oliver Nurseries demonstrated by A. Paton, head-gardener

establishing a root system, the rate of mortality has been considerably higher than in previous years. This does not apply to Lethbridge where, with water available for irrigation purposes, the same success obtainable in the past, or even better, resulted. This is attributable to a great deal of experience now acquired in the handling of nursery stock under the irrigation system.

It would appear from such experience that an overhead sprinkling system should be installed at Oliver when moneys are available to avoid the loss brought about by the lack of natural moisture. The present system can be continued at Fort Saskatchewan where transplanting has not been as extensive as at Oliver and where labour is more readily available and of a better class, at least until such time as the nursery work is on a much larger scale than at present.

STATEMENT OF SEEDING DONE AT THE OLIVER NURSERY IN THE FALL OF 1937 AND THE SPRING OF 1938

200	lineal feet	Red oak (*Quercus rubra*)
200	" "	Bur oak (*Quercus macrocarpa*)
310	" "	Green ash (*Fraxinus pennsylvanica*)
200	" "	Cotoneaster (*Acutifolia*)
86	" "	Blue spruce (*Picea pungens*)
200	" "	White spruce (*Picea glauca*)
152	" "	Lodgepole pine (*Pinus murrayana*)
190	" "	Douglas fir (*Pseudotsuga mucronata*)
24	" "	Red pine (*Pinus resinosa*)
50	" "	Siberian larch (*Larix sibirica*)
120	" "	Elm (*Ulmus*)
4	ounces	Catalpa (*Catalpa bignonioides*)
4	"	Crabapple (*Malus baccata*)
4	"	Honey locust (*Gleditsia triacanthos*)
4	"	Silver maple (*Acer saccharinum*)
4	"	Flowering almond (*Prunus triloba*)
4	"	Horsechestnut (*Hippocastanum*)
4	"	Juniper (*Juniperus communis*)
4	"	Cedar (*Thuja occidentalis*)
4	"	Osage orange (*Maclura pomifera*)
3	"	White cedar (*Ball aborvitae*)
2	"	Butternut (*Juglans cinerea*)
2	"	Black locust (*Gleditsia*)

Seed-beds containing red pine, Scotch pine, lodgepole pine, white spruce, cedar, Douglas fir, yellow pine, Siberian larch and European larch—Oliver Nurseries

Tree Distribution.—The following species and quantities were given out from Oliver in 1938:

Transplants:		
Lodgepole pine (*Pinus murrayana*)	23,197	
White spruce (*Picea glauca*)	19,413	
Green ash (*Fraxinus pennsylvanica*)	12,822	
Bur oak (*Quercus macrocarpa*)	11,044	
Nordman fir (*Abies nordmanniana*)	5,796	
Elm (*Ulmus*)	5,297	
Scotch pine (*Pinus sylvestris*)	3,295	
Red oak (*Quercus rubra*)	1,572	
		82,436
Cuttings:		
Golden willow (*Salix vitellina*)	4,860	
Laurel-leaf willow (*Salix pentandra*)	8,760	
Russian poplar (*Populus balsamifera*)	21,750	
		35,370
Ornamental and exotic species:		
Mountain ash (*Pyrus americana*)	214	
Blue spruce (*Picea pungens*)	186	
Honeysuckle (*Lonicera ciliosa*)	104	
Lilacs (*Syringa japonica*)	82	
Spireas	51	
Native hawthorn (*Crataegus*)	50	
Cotoneaster (*Acutifolia*)	20	
Flowering dogwood (*Cornus*)	10	
Ladoga pine (*Bugnet—Pinus sylvestris*)	10	
Golden elders (*Sambucas*)	10	
Red pine (*Pinus resinosa*)	10	
Weeping birch	6	
White birch (*Betula papyrifera*)	5	
European mountain ash (*Sorbus aucuparia*)	5	
Plum (*Prunus nigra*)	4	
Mayday (*Prunus*)	3	
Ginnalian maple (*Acer ginnala*)	2	
Flowering almond (*Prunus triloba*)	1	
		773
		118,579

Young wind-breaks ready for transplanting and for shipment to fill requirements of people applying for same—Oliver Nurseries

Cucumbers next hedge with vegetable marrows on right. The shelter-belt here consists of caragana, Siberian larch, lodgepole pine and Jack pine—Oliver Nurseries

Youth Forestry Training Project

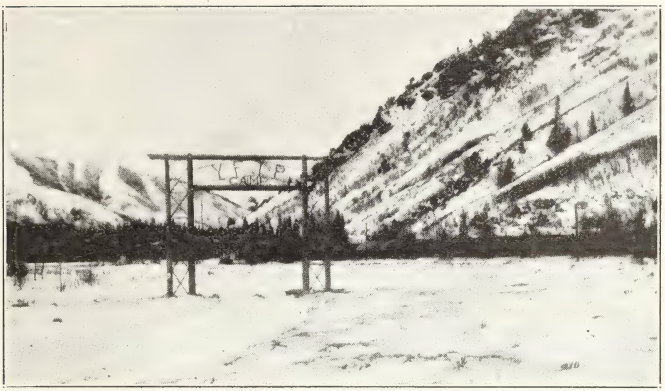
Following the signing of an agreement between the dominion and the province by which each authority undertook to meet half of the cost of a project designed to provide unemployed and needy young men between the ages of 18 and 30 with training and experience in elementary forestry, regular bush work preparations were made to set up the scheme.

The project provided for a winter camp operation and it was necessary to consider such matters as location, communication, housing, transportation and supply as well as other important incidentals.

The young men, 60 in number, were enrolled from a group of several hundred applicants and forwarded to the camp as soon as housing and food supply was arranged. Housing requirements were met by securing from the dominion government a set of sectional camp huts located at Seebe. These were dismantled, trucked to the camp site on the Highwood River within the Rocky Mountains Forest Reserve and re-erected there. Thirteen of these sectional huts were received from the Dominion Forest Service. In addition, winter storage for food supplies was provided by constructing a large root-house and a meat-house. A stable, garage for truck, car and tractor storage, and tool-house were built by the trainees, the material being largely round building timber. One large sectional hut was used for combined lecture room and recreation while another was given over to recreation.

Experience in forestry projects and regular woods work was provided by employing the trainees on projects useful to the Forest Service in the vicinity of the camp. A thorough grounding in a variety of subjects was attempted in order to fit the young men for possible employment with the Forest Service as assistant rangers, patrolmen and lookoutmen. The supervision of the camp and of work project was in the hands of a man experienced in woods and forest ranger work. The more technical instruction was dealt with by the Forest Superintendent and his assistant from Calgary. The general organization and direction of the scheme was in the hands of the Assistant Director of Forestry.

The project was in full operation early in November and continued through to beyond the end of the fiscal year, ending on May 31st. Towards its conclusion several of the trainees secured employment through their own effort



The Youth Forestry Training Camp located in the Highwood River Valley at the foot of Mt. Head and within the Rocky Mountains Forest Reserve. The main range of the Rocky Mountains in the background.

and, after its completion, several, receiving the highest rating, were employed as assistant rangers and lookoutmen by the Alberta Forest Service and a few were placed in other employment.

Throughout the life of the project no effort was spared to assist the trainees in the matter of gaining experience, technical knowledge, good health and a good physique. The greatest handicap experienced so far as instructional work was concerned occurred in connection with the technical phase. This, as mentioned, was dealt with by the regular staff from Calgary. It was not possible to do all that was planned due to the necessity of attending to routine forestry business and at the same time attending to camp requirements and instruction.

Adequate provision was made for first aid instruction and application. Regular daily setting-up exercises were compulsory excepting on days when weather conditions did not permit. Recreation in various forms was encouraged and to this end a large open air skating and hockey rink was established and boxing gloves, punching bags and wrestling mats provided. Exploratory trips afoot or on skis were encouraged and through the leadership of one of the trainees, adept in travelling on skis, a number of the trainees made good progress in learning the use of this enjoyable and useful method of winter travel.

Certain transportation and communication difficulties and work limitations are inherent in a winter operation. These were foreseen and, while they formed definite handicaps, it is not proposed to emphasize them. With regard to limitations, it would be well to mention that winter operation greatly limited the scope of the field work which might have been taken in hand to the mutual advantage of the trainee and the Forest Service. Transport and communication difficulties, while always present to a certain degree, seldom developed to an aggravating extent due to very favourable weather. Weather conditions, such as experienced last winter in the mountain region, are not a regular occurrence and, therefore, if future projects call for winter operation, it would be likely that greater difficulty would be encountered.

STATEMENT OF MAN-DAYS WORKED DURING TRAINING PERIOD, SHOWING NUMBER OF MAN-HOURS OF CLASS INSTRUCTION AND OF FIELD WORK

	Number of Man-days	Number of Man-hours (Class Instruction)	Number of Man-hours (Field Work)
October	84	.....	588
November	1,558	301	10,605
December	1,787	1,510	10,999
January	1,801	2,000	9,258
February	1,543	533	9,066
March	1,590	1,012	9,047
April	1,255	54	8,515
May	1,287	243	8,028
TOTAL	10,905	5,653	66,106

YOUTH FORESTRY TRAINING

Project No. 1

Work Accomplished by Forestry Trainees

Telephone line—6 miles new pole line, poles 26 ft.—replacing old line from boundary to Sentinel thence 1 mile west to camp. Poles all peeled—Average 8 in. at the top—set in 4 to 4½ feet.
1 bridge recovered—18 ft. by 16 ft. wide—riders on top—guard rails to approach.
1 culvert on old road—15 ft. by 4 ft.—2 log high.
1 culvert—24 ft. by 6 ft.—5 log high.
1 culvert—24 ft. by 4 ft.—2 log high.
1 culvert—24 ft. by 4 ft.—2 log high.
(all coverings of 6 in. or over; all set with driftpins; guardrails repaired; rocked and ditched.)
3 campers' shelters—12 ft. by 14 ft.—8 ft. high—log construction—peeled—mortised.
5 camp sites cleared of all brush, logs, litter, dense underbrush—burned.
Clearing of extra width road right of way—4 miles from camp to Fir Creek—average width 12 ft. each side.
Timber cut for cribbing and bridges—Gunnery Grade and road; Sentinel to Boundary—2 more bridges —1 big culvert—¼ peeled.
1 latrine—24 ft. by 12 ft.—log construction—dovetail—pole with tar-paper and earth.
1 meat house—10 ft. by 16 ft.—log construction—square corners—pole with tar-paper roof.
1 oil shed—10 ft. by 12 ft.—log construction—pole—square corners—tar-paper roof.
1 tool shed—10 ft. by 10 ft.—square corners—pole—tar-paper.
1 garage—16 ft. by 28 ft.—lumber roof—tar-paper—dovetail.
1 stable—12 ft. by 16 ft.—saddle corner—pole with tar-paper.
1 boiler house—12 ft. by 14 ft. with well inside—pole and tar-paper—square corners.
1 root-house—8 ft. by 24 ft.—cut in bank—timbered—double entrance.
1 well—with lid—running water piped in from spring.
1 sump-hole for wash-house—pipe attachments from spring.
2 sump-holes, kitchen—14 ft. by 16 ft.; 16 ft. by 20 ft.—covered and hatched.
Large amount of wood hauled in for use at camp.
All buildings had to be re-tarpapered and reroofing applied.
2 recreation huts—16 ft. by 35 ft.—erected—tar-paper and roofing applied.
1 addition to storehouse—12 ft. by 16 ft.—dovetail—lumber rubberoid.
During timber operations, slash was piled and burnt.
Snow plowing and digging of drifts for 10 miles to keep road open for the entire winter.
Levelled rink 150 ft. by 80 ft.—log walls—3 logs high.
Levelled exercise ground and parade ground.
Gravelled walks between all buildings.
General—small partitions, cupboards, tables, etc., for cookhouse and storehouse.
Ventilator for kitchen.
1 archway between dining room and kitchen.
1 entrance gate to camp grounds.
Buildings all banked up with logs and earth.
General repairs of all buildings.
Installation of fire proof stove stands and galvanized iron for proper heat radiation.
Y.F.T.P. Road—Project No. 1.
Distance—1900 feet (rock: 570 feet),
Yardage—dirt and rubble....2,742 cu. yds.
rock .....1,594 " "
Total.....4,336 " "
Width—20 feet (average),
Rock retaining walls—total length, 414 feet—average height, 9.8 feet.

Game

While the Game Branch was transferred to the Department of Agriculture early in the fiscal year, some reference is necessary to the work of Game protection, principally for the reason that for approximately one year the field staff of the Forest Service and the Assistant Director of Forestry were intimately connected with the Game administration, with the field staff concerned with Game administration and protection under the supervision of the Assistant Director of Forestry as Game Commissioner.

Genuine regret was felt at the severance of the connection between Forestry and Game for a large amount of preparatory work had been in hand leading to improvements that would have been mutually beneficial to both branches and to the province at large. It is to be noted that improvement in Game administrative matters was effected; firstly, by the provision of a much larger vote of funds and, secondly, by employing the funds to provide a greatly improved field coverage in the interests of Game Branch administration and protection.

It is of particular interest to note that despite the dissociation of the two branches of administration that all officers of the Forest Service continue to offer assistance and active co-operation in the interest of the conservation of wild life and that, on occasion, such help, involving the time of men and use of equipment, has been forthcoming when the interests of the Forest Service, while of primary importance, were of secondary consideration. The ordinary field work of the Forest Service makes it possible to do a large amount of unreported useful work in the interest of wild life conservation but, in addition to this, there were actually 462 man-days spent on work beneficial to the Game Branch.

MILEAGE TRAVELLED BY EMPLOYEES OF THE ALBERTA FOREST SERVICE

FISCAL YEAR 1937-38

Divisions	Foot	Saddle	Driving	Speeder	Auto	Canoe	Rowboat	Motorboat	Plane	Railway	Other	Total
Northern Alberta Forest District	26,059½	39,883	9,529	24,532	119,382½	3,666	1,457	5,463	642	11,244	841	242,699
Crowsnest-Bow River Forest	2,475	30,105	2,502	.....	41,501	.....	.....	.....	.....	1,729	304	78,616
Clearwater Forest	4,125	13,149	.....	1,780	14,434	.....	.....	25	.....	233	.....	33,746
Brazeau-Athabaska Forest	2,836	17,438	.....	3,983	3,696	.....	.....	.....	.....	723	.....	28,676
Cypress Hills Forest	50	1,460	.....	.....	480	.....	.....	.....	.....	.....	.....	1,990
TOTALS	35,545½	102,035	12,031	30,295	179,493½	3,666	1,457	5,488	642	13,929	1,145	385,727

Accounting Division

REPORT OF THE ACCOUNTANT, I. N. McKINNON

A surplus of $1,084,591.78 on income account was shown for the period ending March 31, 1938, an increase of $87,872.19 over the previous year, despite the transfer to the Department of Agriculture of the Game and Fisheries Branches, the combined surplus of which for the previous year was $56,560.45.

Revenue for the year was $1,606,156.60, which after deducting Game and Fisheries revenue from the previous year's figure, shows an increase of $101,967.68. Main revenue increases and decreases were as follows:

	Increase	Decrease
Grazing permits, fees, rentals, etc.	$ 67,173.23	.....
Timber fees, dues, rentals, etc.	28,961.35	.....
Coal royalties	.....	$ 16,987.22
Petroleum and Natural Gas:		
Fees, retals, etc.	.....	63,447.25
Royalties	140,945.34	.....
School lands miscellaneous	.....	35,247.11
School lands sales interest	.....	24,488.76
Miscellaneous	5,058.10	.....
Net revenue increase	.....	101,967.68
	$242,138.02	$242,138.02

Particulars of revenue by branches will be found in Statement "B". Cash received from all sources amounted to $1,789,276.20 as compared with $1,807,855.35 for the previous year. Particulars are given in Statement "A".

Total expenditure amounted to $521,564.72, and after making allowance in last year's figures for the cost of operation of the Game and Fisheries Branches a decrease of $42,464.96 is shown. Decrease was accounted for by a drop in fire fighting expenses of $67,295.61.

INDEX TO STATEMENTS

A.—Statement of Cash Receipts from all Sources.

B.—Statement of Income Revenue by Branches.

C.—Statement of Cash Receipts, School Lands Branch.

D.—School Lands Trust Fund Balance Sheet.

E.—Statement of Alberta School Lands Sales Revenue Account.

F.—Statement of Collections on Tax Recovery Lands.

G.—Statement of Homestead Entries Granted.

STATEMENT A.

STATEMENT OF CASH RECEIPTS FROM ALL SOURCES

From April 1, 1937 to March 31, 1938

INCOME ACCOUNT:	Gross Receipts	Refunds	Net Revenue
Lands and Grazing Branch:			
Cancellation fees	$ 1,264.00	$ 14.00	$ 1,250.00
Casual	5,172.46	18.58	5,153.88
Cultivation fees, rentals, etc.	3,813.14	99.38	3,713.76
Filing authority fees	1,100.00	2.00	1,098.00
Fur farm fees and rentals	779.07	50.00	729.07
General sales interest	2,122.08	.....	2,122.08
Grazing permits, fees, rentals, etc.	180,883.56	40,043.50	140,840.06
Hay permits, fees, dues, etc.	4,582.01	533.40	4,048.61
Homestead fees	16,000.00	60.00	15,940.00
Improvement collection fees	3,918.20	120.74	3,797.46
Surface rentals	2,822.86	103.40	2,719.46
Timber Branch:			
Casual	2,748.69	.....	2,748.69
Timber fees, dues, rentals, etc.	360,139.42	2,507.93	357,631.49
Mining Lands Branch:			
Casual	6,596.11	93.50	6,502.61
Coal fees, rentals, etc.	115,421.91	437.22	114,984.69
Coal Mines Act sundry revenue	4,818.95	34.10	4,784.85
Coal royalties	158,231.61	4.50	158,227.11
Petroleum and Natural Gas:			
Fees, rentals, etc.	288,221.24	3,377.20	284,844.04
Royalties	249,266.53	.....	249,266.53
School Lands Branch:			
Interest on sales	41,751.06	.....	41,751.06
Miscellaneous	207,790.22	15,513.67	192,276.55
Miscellaneous:			
Casual	7,832.65	241.18	7,591.47
Reimbursement of salaries and expenses	1,014.10	255.30	758.80
Tax recovery office fees	304.00	5.00	299.00
Services and supplies	3,129.73	52.50	3,077.23
TOTAL INCOME ACCOUNT	$1,669,723.60	$ 63,567.10	$1,606,156.50
CAPITAL ACCOUNT:			
Land sales principal	9,541.26	16.12	9,525.14
TOTAL INCOME AND CAPITAL ACCOUNTS	$1,679,264.86	$ 63,583.22	$1,615,681.64
UNAPPLIED RECEIPTS CARRIED FORWARD: (Subject to refund)			
Improvements	12,925.63	5,358.07	7,567.56
Suspense	39,458.44	.....	39,458.44
School lands cultivation crop shares	2,890.90	.....	2,890.90
Land patents cultivation crop shares	257.75	.....	257.75
Grazing permits, fees, rentals, etc.	5,661.53	.....	5,661.53
Services and supplies	375.00	.....	375.00
	$1,740,834.11	$ 68,941.29	$1,671,892.82
TRUST ACCOUNT:			
School lands trust fund	48,442.09		
TOTAL CASH RECEIPTS	$1,789,276.20		

STATEMENT B.

STATEMENT OF INCOME REVENUE BY BRANCHES FOR FISCAL YEARS ENDING March 31, 1937 and March 31, 1938

	Fiscal year ending March 31, 1937	Fiscal year ending March 31, 1938
Lands and Grazing Branch	$ 111,610.39	$ 181,412.38
Timber Branch	331,036.53	360,380.18
Mining Lands Branch	757,247.46	818,609.83
Fisheries Branch	24,317.93	.....
Game Branch	117,989.34	.....
School Lands Branch	293,763.48	234,027.61
Miscellaneous	10,530.96	11,726.50
	$1,646,496.09	$1,606,156.50

STATEMENT C.

SCHOOL LANDS BRANCH
STATEMENT OF CASH RECEIPTS
April 1, 1937 to March 31, 1938

	Receipts	Refunds	Net Revenue
INCOME ACCOUNT:			
Sales: interest	$ 41,751.06	.....	$ 41,751.06
Cultivation fees, rentals, etc.	90,128.48	$ 14,840.54	75,287.94
Miscellaneous leases	197.58	1.25	196.33
Timber permits, fees, dues, etc.	23,073.45	204.51	22,868.94
Grazing fees, rentals, etc.	15,352.89	40.38	15,312.51
Hay fees, dues, etc.	1,324.20	90.50	1,233.70
Coal fees, rentals, etc.	4,869.02	45.00	4,824.02
Coal mining royalties	15,159.15	.....	15,159.15
Petroleum and natural gas: fees, rentals, etc.	35,581.34	226.24	35,355.10
Petroleum and natural gas royalties	24,257.57	.....	24,257.57
Miscellaneous	737.44	65.25	672.19
	$ 252,432.18	$ 15,513.67	$ 236,918.51
Less amount carried forward to provide for tax refunds on cultivation lease crop shares	.....	.....	2,890.90
	$ 252,432.18	$ 15,513.67	$ 234,027.61
TRUST ACCOUNT:			
School lands sales principal	48,442.09	.....	48,442.09
TOTAL INCOME AND TRUST ACCOUNTS	$ 300,874.27	$ 15,513.67	$ 282,469.70

STATEMENT D.

ALBERTA SCHOOL LANDS TRUST FUND
BALANCE SHEET—MARCH 31, 1938

Assets

Cash in bank and on hand		$ 14,878.07	
Investments:			
Dominion of Canada debentures	$9,984,429.39		
Accrued interest	7.14		
		9,984,436.53	
Accounts Receivable:			
Undue principal	$1,549,702.12		
Arrears principal	1,578,521.29		
		3,128,223.41	
Due by Provincial Treasurer re adjustments		33.56	
			$13,127,571.57

Liabilities

Alberta School Lands Trust Fund	$13,127,562.53	
Suspense	9.04	
		$13,127,571.57

STATEMENT E.

ALBERTA SCHOOL LANDS SALES
REVENUE ACCOUNT
April 1, 1937 to March 31, 1938

Arrears interest as at March 31, 1937	$1,322,225.65	.....
Interest charged	365,846.47	.....
Interest on reinstated accounts	180,942.08	.....
Interest revenue		$ 41,751.06
Interest on cancelled sales written off		22,193.09
Amounts transferred from cultivation leases held on reinstated sales		23,838.75
Interest reductions granted by School Land Board		271,971.10
Arrears interest as at March 31, 1938		1,509,260.20
	$1,869,014.20	$1,869,014.20

STATEMENT F.

STATEMENT OF COLLECTIONS ON TAX RECOVERY LANDS

April 1, 1937 to March 31, 1938

Grazing permits	$ 3,031.49
Grazing rentals	3,861.72
Improvements	177.87
Sales principal	1,030.11
Sales interest	8.60
Mineral surface rentals	16.07
Miscellaneous leases	73.21
Cultivation rentals	830.59
Cultivation crop shares	1,476.49
Miscellaneous use permits	19.36
	$10,525.51
Office fees	299.00
	$10,824.51

STATEMENT G.

HOMESTEAD ENTRIES GRANTED

April 1, 1937 to March 31, 1938

	Homesteads	Second Homesteads	Soldier Grants	Total	Entries to Women
Edmonton Land Agency	686	63	6	755	266
Calgary Land Agency	8	4	....	12	3
Lethbridge Land Agency	1	....	....	1	....
Peace River Land Agency	784	44	4	832	316
	1,479	111	10	1,600	585

ANNUAL REPORT

OF THE

Department of Lands and Mines

OF THE

PROVINCE OF ALBERTA

FOR THE

Fiscal Year Ended March 31st

1939

PUBLISHED BY ORDER OF THE LEGISLATIVE ASSEMBLY

EDMONTON:
PRINTED BY A. SHNITKA, KING'S PRINTER
1940

To the Honourable J. C. Bowen,
Lieutenant-Governor of the Province of Alberta.

SIR:

I have the honour to submit the report of the Department of Lands and Mines for the fiscal year ended March 31st, 1939.

I have the honour to be, Sir,

Your obedient servant,
N. E. TANNER,
Minister of Lands and Mines.

Edmonton, December 20th, 1939.

TABLE OF CONTENTS

PAGE

REPORT OF THE DEPUTY MINISTER 9

THE SPECIAL AREAS ACT, 1939 33

Maps of the Special Areas 47

I.—LANDS ADMINISTRATION

Report of the Provincial Lands Division 51

Report of the School Lands Division 53

II.—MINING LANDS ADMINISTRATION

Report of the Mining Lands Division 55

Report of the Petroleum and Natural Gas Division 61

III.—FORESTRY ADMINISTRATION

Report of the Forestry Division 71

IV.——TECHNICAL DIVISION

Report of the Technical Division 97

V.—ACCOUNTS ADMINISTRATION

Report of the Accounting Division 104

CHIEF OFFICERS

DEPARTMENT OF LANDS AND MINES

March 31st, 1939

Honourable N. E. Tanner	*Minister of Lands and Mines*
John Harvie	*Deputy Minister of Lands and Mines*
T. C. Rankine	*Departmental Solicitor*
J. W. Stafford	*Director of Lands*
J. W. Hamilton	*Superintendent of Mining Lands*
T. W. Dalkin	*Superintendent of the Technical Division*
T. F. Blefgen	*Director of Forestry*
J. A. Hutchison	*Assistant Director of Forestry*
F. W. Neilson	*Chief Timber Inspector*
I. N. McKinnon	*Accountant*
A. A. Millar	*Chief Inspector, The Coal-mines Regulation Act*
M. Gossip	*Agent, Calgary Land Agency*
R. Cruickshank	*Agent, Lethbridge Land Agency*
J. J. E. Clarke	*Agent, Peace River Land Agency*
J. L. Irwin	*Statistician*

REPORT

OF THE

Department of Lands and Mines,

1938-39

Honourable N. E. Tanner,
Minister of Lands and Mines,
Edmonton.

SIR:

I have the honour to submit the ninth Annual Report of the Department of Lands and Mines for the fiscal year ended March 31st, 1939.

The year opens with two very important actions by the Government taken in the interests of the preservation of the natural resources;

Firstly, the bringing to Alberta of Mr. W. F. Knode of the firm of Messrs. Parker, Foran, Knode and Boatright of Texas, U.S.A., a noted authority on oil and gas conservation, to which mention was made in my report of 1937-38.

Secondly, the action taken for the immediate rehabilitation of the settlers who live in the areas subject to drought, through the formation of a Board to deal with the problem. The members of the Board were representative of three departments—Agriculture, Lands and Mines and Municipal Affairs. When the organization was completed it was felt that the Board should be in complete control of all activities within the drought area necessitating the bringing under one Minister the unified control of all governmental actions. The Special Areas Act, 1939, places the authority with the Minister of Lands and Mines and he is empowered to assign to the Board the performance of any duty or power in relation to any Special Area and as agent of the Minister the Board has the same powers and capacity to perform or discharge such duty or power as conferred by the Act on the Minister.

Following the decision to increase the responsibility of the Board, it was felt preferable to bring in as members of the Board residents of the drought area conversant with the problems and needs of the settlers. Consequently the Board was re-established with Messrs. A. C. McCully, chairman; G. R. Armstrong, and D. M. Graham, Secretary.

A copy of "The Special Areas Act, 1939" will be found immediately following this section of the Report, together with maps on each Special Area.

With the arrival of this particular date the Department completes its first eight and a half years of administration since October 1st, 1930, the date on which it was brought into being, and the date, also, on which the natural resources of Alberta were officially transferred from dominion to provincial control. Before touching on the activities of the present period under review I feel that with the passing of this period of years a resume of events covering the time in question, would be of interest.

At the close of the first fiscal year, March 31st, 1931, the first Annual Report of the Department covered of course a period of only six months, the transfer of the resources and the formation of the Department dating from October 1st, 1930.

The following sections from this first Report are reproduced as follows:

"The period which is reviewed constitutes only one-half of the year, dating as it does from October 1st, 1930. This date is of course significant in that it is representative of the day upon which the Natural Resources of Alberta were formally transferred to the control and administration of the Alberta Government. The report which is herewith presented to you carries an additional significance in that it constitutes for the Provincial Government archives the first report of this new and long expected administration.

The short period it covers was one of considerable importance and responsibility. It was a period which demanded not only a continuance of administration, free from complications or confusion, of the various divisions of the Department but also the installing of an efficient system which would be suitable and necessary for the new Provincial control.

Legislation was enacted during the session of the Legislature for the administration of lands, minerals, forests, fisheries and to control the drilling of oil and gas wells. In the interim period between the transfer of the resources to the Province and the proclamation bringing the legislation into force, the disposition of lands and minerals continued to be made according to the terms of the Federal legislation in force when the natural resources came under Provincial control.

The following summary shows to what extent the Province benefited from the agreement made with the Dominion of Canada:—

Total Area of Province	163,382,400	acres	approx.
Water Area of Province	4,150,400	"	"
Land Area of Province	159,232,000	"	"
Lands Patented as at Sept. 30, 1930	42,930,000	"	"
Lands Alienated as at Sept. 30, 1930	5,314,000	"	"
Area of Unalienated Provincial Lands as at Sept. 30, 1930	84,467,170	"	"
Total Area within Forest Reserves	12,436,500	"	"
Water Area within Forest Reserves	43,000	"	"
Land Area within Forest Reserves	12,393,500	"	"
Total Area within Dominion Parks	13,434,240	"	"
Water Area within Dominion Parks	635,000	"	"
Land Area within Dominion Parks	12,799,240	"	"
Indian Reserves	1,328,090	"	"
Area of Surveyed Land including water areas but excluding Dominion Parks and Indian Reserves	70,007,000	"	"

Due to misunderstanding as to the requirements of the Province, the Department of the Interior has been very loath to part with any of the permanent records in its possession. Negotiations are at present being conducted for the transfer to the Province of the files, registers and other documents pertaining to property of which there has been disposition made, and it is anticipated that these negotiations will be successfully completed when there will come into the possession of the Department of Lands and Mines many hundreds of thousands of documents and plans now forming a part of the permanent record in Ottawa.

The various divisions of the Department of the Interior have been most considerate in furnishing to the Province information required in the setting up of new records and without this hearty co-operation it would have been impossible for your officials to have accomplished in the short space of time the numerous details that have been written into the records of the Province."

The following year, 1932, is principally remembered as a period of world-wide economic depression. Purchasing power was reduced to a minimum and the danger of over-production faced many enterprises with industrial stagnation as a natural result.

While unproductive economically, the year was nevertheless destined to fill an important niche in the history of the Province as a result of the intensive organization of this large and new Department. It was definitely a period during

which intensive application to detail became very necessary. This necessitated a long and strenuous effort on the part of all members of the staff and the work was carried out efficiently and well. It should, I think, be emphasized that this particular year was an extremely important one in the Department's history for in it was laid the foundation upon which future administration would be built.

It was in this period that I made public reference to the results, now so unfavourable to this Province, of land subsidies which had been granted in return for railway construction—the actual land and mineral rights disposed of in return for an inadequacy of railway mileage.

The following paragraphs are quoted from my Report, touching on this question:—

"Land subsidies which had been granted in the western provinces to aid in the construction of railways and granted also to the Hudson's Bay Company are shown, as applicable to this Province up to the date of transfer of the resources, in the following table:

	Alberta mileage	Alberta acreage patented
Calgary and Edmonton Railway Company	295.07	1,806,168
Alberta Railway and Coal Company	174.12	1,096,217
Souris Branch, Canadian Pacfic Railway Company	Nil	160
Pipestone Extension, Souris Branch, Canadian Pacific Railway Company	Nil	521
Great North West Central Railway Company	Nil	640
Manitoba Southwestern Colonization Railway Company	Nil	319,680
Canadian Northern Railway Company	Nil	859
Manitoba and Southeastern Railway Company	Nil	312
Canadian Pacific Railway Company	332.10	9,807,174
Total	801.29	13,031,731

In the four western provinces of Manitoba, Saskatchewan, Alberta and British Columbia, 3,527.26 miles of railway were constructed, each Company being given a land subsidy to aid in the construction of its own particular railway. In the four provinces combined, a total of 31,672,006 acres was transferred to the different companies as land subsidies for the railway mileage so constructed.

In this connection a total of only 801.29 miles was representative of railway construction in Alberta. But in spite of this small mileage no less than 13,031,731 acres has been granted out of Alberta lands, a figure greatly in excess of the actual acreage earned by the construction of transportation lines within this Province. In addition to this, these land subsidies which were granted carried to the new ownership, in practically every instance, all minerals underlying such lands.

In compliance with the Agreement of the nineteenth of November, 1869, the Hudson's Bay Company acquired the right to one-twentieth of all lands in the fertile belt of the three western provinces set out for settlement, and there has been granted by the Dominion of Canada a total of 2,404,000 acres within the Province of Alberta, as representative of land subsidies to the Hudson's Bay Company under the terms of this Agreement."

In April, 1932 The Turner Valley Gas Conservation Board was brought into being. My report on that Board and on the necessity for conservation of pressure is as follows:—

"Turner Valley Gas Conservation Board.—The creation of the Turner Valley Gas Conservation Board was effected in April, 1932, with a view to the continuation and completion of the tests previously carried out by the Petroleum and Natural Gas Division. With the assistance of a staff of six engineers who were continuously employed on these tests, the work of the

Board was duly completed. A copy of the Board's findings, shown as Exhibit A, appears further on in this report in the Petroleum and Natural Gas section. These findings, which confirmed the initial data procured by the Petroleum and Natural Gas Division, contained also an entire survey of past operations in Turner Valley and made recommendations for future efficient development.

The prorating recommendations made by the Board in its report were strongly protested by the operators, particularly the independents, at two meetings held, one in Calgary and one by the Agricultural Committee of the Provincial Legislature in Edmonton.

After hearing the operators' views it was decided that no useful purpose would be gained by continuing the tests at public expense. This resulted in the decision that future operation of the field would be in accordance with provincial regulations, subject to the cancellation of the temporary measure which prohibited the drilling of new wells to the limestone. In addition to this, the volume of gas allowed to be drawn from each well was to be increased to forty per cent. in lieu of the twenty-five per cent. as previously specified and the enforcement of regulations respecting the installation of meters was to be carried out.

Necessity for Conservation of Pressure.—It is now generally realized that a continuance of the wasteful methods, which in the past have dissipated so great a volume of gas and many hundreds of pounds of useful pressure, would be seriously detrimental not only to the future of the field, but also to the success of operations at present in force.

A very useful underground pressure still exists in Turner Valley, and its use on an economic basis will insure a natural propellent for forcing naphtha to the surface. The necessity for its preservation as an economical means of production and as opposed to the alternative of exorbitant and prohibitive expenses which would be incurred by mechanical means is most apparent."

The full report of the Board is given at the close of the Petroleum and Natural Gas Division's Report for 1932-33, written by the Director, Mr. Calder.

On March 31st, 1933 the office of the Grande Prairie Land Agency was closed, the staff and office material being transferred to the Peace River agency, from which centre the two areas until further notice were to be administered.

The move was partly an economic measure and partly a desire to centralize the two districts from one office, a sub-agency becoming established at Grande Prairie.

On Thursday, August 9th, 1934 the death took place of Albert Helmer, Supervisor of Grazing, while visiting in California. Mr. Helmer's Government service started in 1880 and a year later he was a member of the party which surveyed the fourth meridian. An obituary notice briefly reviewing his career is given in the 1933-34 report.

The year 1934-35 was conspicuous as the period in which the Report of the Royal Commission on the Natural Resources of Alberta was published. The establishment of two other Royal Commissions, the enquiry into the welfare of the half-breed population of Alberta and the investigation covering the coal-mining industry of Alberta, materialized during this period.

The following, relative to these three Commissions, is quoted from my Report of that year:—

"Before giving a resume of our activities, may I digress to refer to the report of the Royal Commission on the Natural Resources of Alberta under the chairmanship of the Honourable Andrew K. Dysart, Judge of the Court

of King's Bench, Manitoba, transmitted the 12th of March, 1935, to the Right Honourable R. B. Bennett, Prime Minister of Canada.

The Commission was instructed to ascertain what consideration should be paid to the Province, in addition to the sums provided in Paragraph 20 of the Natural Resources Agreement, in order that Alberta may be placed in a position of equality with the other Provinces of Confederation with respect to the administration and control of its natural resources as from its entrance into Confederation in 1905.

The Department wishes to express its appreciation to M. M. Porter, K.C., of Calgary, for the excellent way in which the case for the Province was presented. Throughout the whole of the proceedings Counsel for the Province emphasized to the Commissioners that he was there to help them in their many ramifications.

Aside from the large amount of data furnished by the Province as well as the Dominion, Counsel was faced with the necessity of conducting a minute research into the historical background of Confederation and his presentation of the Province's case reveals how thoroughly and efficiently such investigation was conducted.

Our appreciation is likewise extended to James J. Frawley, K.C., Solicitor of the Attorney-General's Department of the Alberta Government, for his long hours of intensive research and compilation of data on a great variety of subjects, and to James C. Thompson, C.A., Provincial Auditor, Province of Alberta, for his valuable assistance in an advisory capacity in all matters relating to finance.

As requested by the Legislature, a Commission under the chairmanship of the Honourable Albert Freeman Ewing, a Judge of the Supreme Court of Alberta, was established to enquire into the problems of health, education and general welfare of the Half-breed population of Alberta. Negotiations are also proceeding for a Commission to investigate the coal mining industry of Alberta and it is anticipated that the Enquiry will be held at an early date.

The Report of the Royal Commission on the Natural Resources of Alberta, which materialized during the period under review, was an event of first importance not only to this Department but also to the Alberta Government.

The function of this Commission was specifically one of arbitration with regard to whether any, and, if any, what consideration, in addition to the sums provided in Paragraph 20 of the Natural Resources Agreement (Statutes of Canada, Ch. 3, 1930) should be paid to the Province in order that Alberta, as previously mentioned, may be placed in a position of equality with the other Provinces of Confederation with respect to the administration and control of its natural resources as from its entrance into Confederation in 1905.

Authorization by Order in Council.—The Commission on the Natural Resources of Alberta was created pursuant to authorization contained in Order in Council, P.C. No. 1588 of July 19th, 1934.

Personnel.—The commissioners appointed were as follows:

The Honourable Andrew K. Dysart, Judge of the Court of King's Bench, Manitoba, Chairman;
George C. McDonald, Esq., Chartered Accountant, Montreal;
Oliver Master, Esq., Chief, Economics Division, Department of Trade and Commerce, Ottawa, Secretary.

Counsel appearing before the Commission for the Dominion of Canada were:

James McGregor Stewart, K.C., Halifax;
C. P. Plaxton, K.C., Senior Advisory Counsel of the Department of Justice, Ottawa.

Counsel appearing before the Commission for the Province of Alberta were:

M. M. Porter, K.C., Calgary;
James J. Frawley, K.C., Solicitor of the Attorney-General's Department, Government of Alberta.

Assisting at the hearings and elsewhere were responsible officials of several Departments of the Dominion and Provincial Governments.

Published Verbatim Reports of the Proceedings before the Commission.—The verbatim Report of the entire proceedings before the Commission has been published in typewritten form in three bound volumes.

Public Sittings.—Public sittings for the reception of evidence and argument were held at Ottawa where, because of the accessibility of records, the convenience of all parties was best served.

Following a preliminary meeting on August 14th, hearings were divided into several periods, which were as follows—October 2nd and 3rd, October 16th to 19th inclusive, November 21st and 23rd, December 4th to 8th inclusive, and December 11th.

The sittings, it will be observed, ranged themselves into several groups separated from one another by intervals of varying duration. These intervals were required for investigating sources of information and for securing and preparing evidence as the same was requisitioned from time to time during the progress of the Enquiry and as issues emerged and took definite form. The task of procuring and compiling the vast and varied amount of needed information was one of great magnitude and demanded the services of a considerable number of departmental officials for many weeks.

Evidence.—Evidence to be presented before the Commission was divided between statements of Counsel and documentary material. The latter comprised over 250 exhibits covering a wide range of subjects which included maps and graphs, copies of Orders in Council, extracts from public documents, quotations from the public utterances of public men, synopses and analyses of records and complicated tabulations of data.

Similarity to Saskatchewan Report.—It should be stated that this Report in many sections follows closely, if not identically, the text of the Report of the Royal Commission on the Natural Resources of Saskatchewan. This Enquiry, which began when the hearings in the Saskatchewan Enquiry had been completed, had to deal with problems closely paralleling those of Saskatchewan, both in respect to historical background and practical difficulties, and has been conducted by three Commissioners of whom two were members of the Saskatchewan Commission. The work of the two Commissions, in the latter stages, was carried on concurrently and the Reports, though separate, covered much common ground in the same or closely similar terms.

Report of the Commission.—The Report of the Royal Commission on the Natural Resources of Alberta, following the submission of all evidence, was published, both in typewritten form in bound volume and in printed form as a Government publication, on March 12th, 1935, upon which date it was presented to the Prime Minister of Canada by the Honourable A. K. Dysart, Chairman of the Commission.

The Report opens with a copy of the letter of presentation to the Prime Minister followed by a copy of the Order in Council, P.C. 1588, July 19th, 1934, which authorized the creation of the Commission. The body of the Report is divided into nine brief chapters concluding with a note by Mr. Commissioner McDonald.

The chapters deal with the following subjects:

Chapter
- I. Introductory
- II. Control of Natural Resources in Canada
- III. The Dominion's control of Natural Resources
- IV. The Attitude of the Prairie Provinces
- V. The Reference: its Scope and Intent
- VI. Alberta's Claims—General Observations.
- VII. The Claims considered
- VIII. Credits claimed by the Dominion
- IX. Conclusions and Recommendations

Note by Mr. Commissioner McDonald

Recommendations.—The Commissioners' Recommendation is contained in the last chapter of the Report on page 38. In this section the sum mentioned, which it considers should be paid to the Province of Alberta by the Dominion Government, is $5,000,000. It was also proposed that this sum should bear interest at the rate of five per cent per annum from October 1st, 1930 to March 31st, 1935 and thereafter to such date and at such rate as the two Governments may agree upon. Furthermore, it was recommended that no portion of this sum should be considered as belonging to the Alberta School Lands Fund and also that it should include all sums payable by the Dominion in respect of townsites, mentioned in paragraph 81 of the Report, and other minor adjustments.

The sum of money involved in this recommendation was determined upon as the result of compromise and agreement as to the amount but not by agreement as to the method of calculation, the arithmetic of the case presenting too many variables for two persons to reach a common result in precisely or even closely similar manner. With a given agreement upon the result it was deemed unnecessary to set out individual viewpoints as to the different ways in which the Dominion and Provincial Credits should be respectively compiled. This, it was stated, would open up a problem lending itself to endless variation and consequently to endless controversy."

In the Petroleum and Natural Gas Division's section of the Report for 1934-35 the following exhibits were included by the Director, Mr. Calder:—

Exhibit "B"—"Metering of Gas Wells," by J. G. Spratt, Divisional Engineer of the Division;

Exhibit "C"—"Turner Valley Drilling Practice," by Vernon Taylor, Assistant Engineer of the Division;

Exhibit "D"—"Natural Gas in Alberta," by F. K. Beach, Office Engineer of the Division;

Exhibit "E"—"Wainwright Oil Field," by R. M. S. Owen, Assistant Engineer of the Division.

At the beginning of the fiscal year, 1935-36 a reorganization of the Department was put into effect which included the creation of a School Lands Division, a Mining Lands Division and the elimination of the Edmonton Land Agency.

I reported on these three changes as follows:

"*School Lands Division.*—The School Lands Division is responsible for the administration of all lands of the School Endowment in accordance with the provisions of the Provincial Lands Act and regulations as established by the Lieutenant-Governor in Council under authority of the said Act.

Administration of the new Division deals with the maintenance of complete index and filing systems, authentic records, applications for surface rights, enforcement of payments owing on land purchases, leases, etc., and the collection of crop shares on cultivation leases together with the marketing of grain paid on a crop share basis.

Mining Lands Division.—Functions of this new Division include the disposition of mineral rights in provincial and school lands under authority of

the Provincial Lands Act and regulations as promulgated by the Lieutenant-Governor in Council.

Administration deals with applications for mining rights, issuance of leases, registration of assignments and cancellation of rights.

All business relative to credits and royalties, combined with the duties of Mining Recorder for the Edmonton District, are also responsibilities of the Division.

Abolition of the Edmonton Land Agency.—In the general process of reorganization the abolition of the Edmonton Land Agency became obvious for the purpose of eliminating duplication of records.

The closing of this Agency took effect therefore at the beginning of the year and the area of the Edmonton Land District with all the business accustomed to be transacted therein came under the control of the various Divisions of the Department to which they were applicable."

Also during this year I reported further on the Royal Commissions held for enquiries into the welfare of half-breeds and into the coal-mining industry. A third Royal Commission, in addition to these two, enquiring into the Coalhurst mining disaster on December 9th, 1935, is also reported on.

The following, relative to these three, is reproduced:—

"During the period of this Report three Royal Commissions were held which bore a direct relationship to the activities of this Department.

The first, the Report of which was presented in December, 1935, was an investigation respecting the coal industry of the Province of Alberta. The Rt. Hon. Sir Montague Barlow, Bart., P.C., K.B.E., LL.D., was appointed as Commissioner for this Enquiry.

The second, reported on February 15th, 1936 was held for the purpose of investigating conditions of the Metis population of this Province. Commissioners sitting on this Enquiry were the Hon. A. F. Ewing, Judge of the Supreme Court of Alberta, J. M. Douglas, Stipendiary Magistrate for the Northwest Territories, and Dr. E. A. Braithwaite, Coroner and Inspector of Hospitals, Department of Public Health. T. C. Rankine, Departmental Solicitor, Department of Lands and Mines, was appointed Secretary to the Commission.

The third, under the Commissionership of the Hon. H. W. Lunney, Judge of the Supreme Court of Alberta, was carried out with a view to conducting an Enquiry into the Coalhurst mining disaster which occurred on December 9th, 1935. The Report of this Enquiry is dated April 14th, 1936, two weeks after the close of the fiscal year. The disaster, however, having taken place within the period under departmental review and the investigation as to cause being under way at the close of the fiscal year, the Report of this Commission is included as a section of this Annual Report of the Department.

A resume of the three Royal Commissions follows.

REPORT OF THE ROYAL COMMISSION RESPECTING THE COAL INDUSTRY OF THE PROVINCE OF ALBERTA, 1935

Commissioner

Rt. Hon. Sir Montague Barlow, Bart, P.C., K.B.E., LL.D.

This Report, presented by the Rt. Hon. Sir Montague Barlow, Bart., P.C., K.B.E., LL.D., Commissioner presiding at the Enquiry, covers in considerable detail an investigation carried out with a view to the general betterment of Alberta's coal-mining industry.

Authorization by Order in Council.—The Commission for this Enquiry was created pursuant to authorization by Order in Council, Government of the Province of Alberta, dated September 13th, 1935.

Published Report.—The Report covering this investigation has been published in printed form by the Government of the Province of Alberta.

Subject-matter of the Report.—Subject-matter of the Report is as follows:

Letter of Presentation to His Honour the Lieutenant-Governor in Council;
Publication of the Order in Council creating the Commission;
Recommendations made as result of the Enquiry;
Seven Chapters into which the main body of the Report is divided;
Two Appendices dealing with
(I) Aggregate profits and losses and
(II) Analyses of Coal.

Acknowledgment.—On the opening page the Commissioner acknowledges the skilled assistance, which, in compiling this Report, he received from William Armour, Esq. of the Mines Department of Great Britain, who acted as Technical Adviser, and from the following Government of Alberta officials: R. Andrew Smith, Esq., K.C., Legislative Counsel, who acted as Counsel and Secretary, Andrew A. Millar, Esq., Chief Inspector, The Coal-mines Regulation Act, Department of Lands and Mines, and James C. Thompson, Esq., C.A., Provincial Auditor, and representatives of his Department.

Resume of the Report.—A resume of the Report, divided into the seven chapters already referred to, follows.

Chapter I.—Chapter I, under the heading of Introductory, opens with a reference to the Commission constituted by Order in Council dated September 13th, 1935, made under the Public Enquiries Act, 1922.

Following is a list of the names of Alberta cities and towns at which sittings for the reception of evidence were held. The dates of each are given together with the names of Counsel appearing before the Commissioner on behalf of their clients. A verbatim report of the proceedings of these sittings, it is stated, is filed for reference with the Mines Branch of the Department of Lands and Mines, Edmonton.

Mention of the circulation of two questionnaires, to be answered respectively by operators and miners, follows with the information that answers thereto are filed with the other documents.

The balance of the Introductory Chapter refers to the changes which have taken place in Alberta's coal industry since 1925 and points to the fact that the present Enquiry is concerned mainly with the questions of marketing, regulation and social problems.

The chapter concludes with a statement of appreciation to all who have assisted in the Enquiry. To the names of officials already mentioned, the appreciation adds those of Miss Perkins, U.S. Secretary of Labour at Washington, Mr. H. B. Butler, Director of the International Labour Office at Geneva, and the staffs of their respective Departments, Mr. Howard Stutchbury, Alberta Trade Commissioner, his Assistant in Toronto, Mr. E. S. Clarry and Mr. C. K. Huckvale of the Audit Department, Government of the Province of Alberta.

The subjects dealt with in Chapters II to VII of the Report are as follows:

Chapter II.—Resources and Development

1. Coal resources and Ownership.
2. Mining Development and Output
   Estimated capacity of present Alberta Mines Output

3. Coal Utilization
   Electrical Development
   Carbonization
   Hydrogenation

Chapter III.—Operating Conditions and Practice

1. Equipment
2. Mining Practice

Chapter IV.—Capitalization—Profits or Losses—Management Costs

1. Capitalization
2. Aggregate Profits and Losses
3. Increase of Cost due to Lost Time
4. Conclusion

Chapter V.—Marketing

1. Coal Consumption in Canada
2. General Survey of Alberta's markets
3. Railway Market
4. Market in Alberta; Competition from Gas
5. Markets in the Canadian provinces, dealt with individually
6. Market in the United States
7. Recommendations
8. Conclusion

Chapter VI.—Mine Workmen and Labour Relations

1. Composition of the working force
   (i) Persons engaged
   (ii) Too many workmen
2. Operators' Organizations: Recommendation
3. Labour Organizations
4. Wages and Working Conditions
   Minimum Wage
   Minimum Wage in Small Mines
   Payment by Measurement or Weight
   Wash-houses
5. Housing
6. Closed Camps
   Access
   Monopoly
   Education
   General
7. Workmen's Compensation
8. Unemployment Insurance
9. Mine Rescue Work—Recommendations
10. Miners' Certificates—Recommendation
11. Mining Industry Welfare Fund—Recommendation

Chapter VII.—Regulation

1. Introduction
2. Germany, Great Britain, United States of America and Saskatchewan
   (i) Germany
   (ii) Great Britain
      (a) Part I of the Coal-mines Regulation Act 1930
      (b) Administration of Part I
         Output and Quotas
         Price Regulation
         Central Selling Agency
      (c) Part II of the Coal-mines Regulation Act 1930
         Conclusion
   (iii) United States of America
      The Guffey Act
      Appalchian Selling Agency
   (iv) Saskatchewan
3. Legal Regulation in Canada generally
4. Legal Regulation in Alberta generally; and for the Coal Industry
   Recommendations

5. Coal Conditions in Alberta Disorganized
   Small Mines
   Trucking
   Trade Names
6. Efforts at Voluntary Organization in the Coal Industry
   (i) Drumheller
   (ii) Edmonton
   (iii) Amalgamation
   (iv) Unfair Practices
7. Organization in the future
8. Board to manage the Coal Industry not desirable
9. Control of Development—Regulation necessary—Recommendations
10. Need of a Code—Recommendations
    (i) Code
    (ii) Price Fixation
    (iii) Minimum Wage
11. Quotas—Central Selling Agencies—Amalgamation
    (i) Domestic Coal
        (a) Quotas
        (b) Central Selling Agencies
        (c) Amalgamation
            Recommendations
    (ii) Steam Coal
        (a) Irregular Employment
        (b) Equipment
        (c) Oil in Locomotives
        (d) Closing Pits
        (e) National Policy
        (f) Conclusions

APPENDICES

I. Aggregate Profits and Losses

II. Analyses of Coal

Recommendations.—The recommendations of the Report are given immediately prior to the first chapter.

Opening under the heading of the Ontario Market, the proposal for a continuation of subventions is made. Elaboration of the various points bearing relationship to such consideration follows.

The balance of this section of the Report makes detailed recommendations regarding the following subjects:

Operators' Association
Mine Rescue Work
Miners' Certificates
Mining Industry Welfare Fund
Powers to be Transferred
Control of Development
Formulation of a Code
Fixed Prices—Minimum Wage in small Mines
Quotas—Central Selling Agencies
Amalgamation

REPORT OF THE ROYAL COMMISSION TO INVESTIGATE CONDITIONS OF THE HALF-BREED POPULATION OF ALBERTA, 1936

Commissioners

Hon. A. F. Ewing, Judge of the Supreme Court of Alberta
J. M. Douglas, Stipendiary Magistrate for the Northwest Territories
Dr. E. A. Braithwaite, Coroner and Inspector of Hospitals, Department of Public Health, Province of Alberta

Secretary to the Commission

T. C. Rankine, Departmental Solicitor, Department of Lands and Mines

Under the chairmanship of the Hon. A. F. Ewing, Judge of the Supreme Court of Alberta, this Report, dated at Edmonton, February 15th, 1936, deals with an investigation into the conditions of the half-breed population of Alberta.

Authorization.—A Resolution of the Alberta Legislature dated February 27th, 1933, and an Order in Council dated December 12th, 1934, the latter containing appointment of the Commissioners, constitute the Authority for this Enquiry being held.

Published Report.—The Report covering the investigation is published in mimeographed form by the Department of Lands and Mines.

Report of the Commission.—The Report of the Commission gives a detailed account of the extensive investigation which was held.

Meetings took place in Edmonton and also at High Prairie, Lac la Biche, Goodfish Lake, Grand Cache, Chipewyan, Athabaska, Groff, Frog Lake and Marlboro.

A review of this situation and its long and interesting history of Alberta, dating almost to Confederation, is given. This review deals with the nomadic nature of the Metis people, who in lacking business foresight were vulnerable to the wiles and persuasions of speculators and others which resulted in the loss of their scrip.

The Report continues under the headings of health, education and general conditions and concludes with detailed recommendations.

REPORT OF THE ROYAL COMMISSION CONDUCTING ENQUIRY INTO THE COALHURST MINING DISASTER, ALBERTA, ON DECEMBER 9th, 1935

Commissioner

Hon. H. W. Lunney, Judge of the Supreme Court of Alberta

Under the Commissionership of the Hon. H. W. Lunney, Judge of the Supreme Court of Alberta, an Enquiry was conducted into the Coalhurst mining disaster which took place in the Imperial mine operated by the Lethbridge Collieries at Coalhurst, Alberta, on December 9th, 1935 at approximately 3.30 p.m.

Authorization.—Authorization for conducting this Enquiry is contained in an Order in Council of the Alberta Legislature dated January 14th, 1936.

Published Report.—The Report, dated April 14th, 1936, is published in mimeographed form by the Department of Lands and Mines.

Report of the Enquiry.—The Report of the Enquiry into the Coalhurst mining disaster in which the lives of sixteen men were lost opens with a description of events at the mine on the day the explosion took place, the number of men engaged in the day shift and their relative positions at the time of the accident.

Continuing, it goes exhaustively into an examination of everything in the nature of direct air currents, safety lamps, voltage of electricity used, etc., with a view to establishing a cause for the disaster.

The finding of the Commission points to evidence which 'clearly established that the explosion was caused by gas which had formed at the cave or overcast, that the gas came from the old workings and the explosion may have occurred in the old workings or in the new workings.'

A transcript of the evidence and a list of the exhibits connected with this Enquiry are on file in the Court House at Lethbridge."

In the 1936-37 Report I prefaced my review of that particular period with an introduction which dealt with the surpluses acquired by this Department in the preceding years which dated back to its inception. I also included with this introduction a brief review touching on the natural resources of Alberta, of their vital importance to the people of this Province and the significance which must be attached to their very real value in the present and future economic life of the Dominion.

This introduction reads as follows:—

"For over thirty years, or to be more specific from September 1st, 1905, when the Province of Alberta was created, an insistent demand has been made at all times upon the federal government by the people of this province for the transfer and control of Alberta lands and minerals. A demand which was terminated by the agreement of December 14th, 1929.

At the time this agreement was made the Government of the day, patterning an administration upon the Department of the Interior, Ottawa, visualized that for at least five years no benefits of any importance would accrue to the people of Alberta. They were in fact convinced that an annual loss over this initial period would be experienced.

Notwithstanding these fears, however, the Department during its first six and a half years of existence has produced the following surpluses on income account:

	Surplus
*October 1st, 1930 to March 31st, 1931 (Latter half of fiscal year)	$348,768.54
Fiscal Year 1931-32	341,859.06
1932-33	289,616.15
1933-34	185,072.04
1934-35	646,528.97
1935-36	647,931.21
1936-37	996,719.59

*October 1st, 1930, date upon which the Department of Land and Mines was formed.

In the years immediately prior to the transfer the Department of the Interior sustained very considerable loss in their administration of these same resources and anyone sufficiently interested can find data in the annual reports of that Department or in the reports of the Auditor-General of Canada.

Changing from retrospect to the present and also future there are many points regarding the province's natural resources the discussion of which is not only of very real interest but of vital importance to the people of Alberta. Coal for example may well be cited as an outstanding if somewhat contentious subject.

The bulk of Canada's coal reserves, bituminous, sub-bituminous and lignite, are in this province. A noticeable percentage of the world's visible supply as a matter of fact is in Alberta and we are presumably assisted by a subvention freight rate to Ontario of $2.50 per net ton where the ordinary rate is $8.00 or over.

In spite of these factors, in 1935 we only shipped 64,659 tons of coal to Ontario when in the same year that province imported from the United States, in addition to shipments from Nova Scotia and New Brunswick, 10,840,950 tons.

Our shipments to Ontario in this particular year in comparison to these imports from the United States, on which tariffs up to 75c per ton were paid, represent an insignificant one-half of one per cent.

This illuminating and decidedly discouraging result, which is repeated year by year, is attributable solely to the fact that the subvention rate is not sufficient to enable Alberta coal to meet a competitive price in eastern Canada.

This revelation of course finishes at only one conclusion. A conclusion which shows that pending a fair and reasonable adjustment of this situation, Alberta, holding the bulk of Canada's coal reserves, must continue to be largely inactive regarding their development while eastern Canada continues to be supplied with her requirements from foreign countries.

Our known deposits of bituminous sands in the present accessible area have been estimated to contain over one billion barrels of oil, and two companies are at work to produce them commercially. In fact, before the advent of the Turner Valley crude oil discovery, it had been thought that our oil resources might be confined to recoveries from these deposits. The discovery of a crude oil field, however, in the south end of Turner Valley, introduced by the most successful completion of the Turner Valley Royalties well in the north-west quarter of section 28, township 18, range 2, west 5th meridian on June 16th, 1936, gave quite an impetus to oil-drilling operations throughout the province.

Early in 1936 the first step was taken by the amendment of the Petroleum and Natural Gas Regulations so that the amount expended in drilling operations, exclusive of the cost of machinery and casing employed, but including reasonable depreciation, would be established as a credit in the books of the Department and such expenditure used to satisfy the rental of the petroleum and natural gas locations held by the lessee. At the same time provision was made so that a lessee who had acquired the petroleum and natural gas rights in freehold land contiguous to his Crown lease could, by an arrangement with the Minister, consolidate his operations in respect to the whole by the installation of machinery and equipment on one or more of the locations forming a part of the group. Also, the area of the group or consolidation was enlarged to a maximum of 50,000 acres and even though the expenditures were made on freehold land it was permissible to establish a credit of an amount not exceeding 50% of the approved expenditures which could be used over a period of three years to the payment of rentals of petroleum and natural gas leases within the group upon which oil or natural gas in remunerative quantities had not been found.

An increase was granted also on account of excess expenditures, making the allowable 50% instead of 35%, and these concessions together with the action taken in March of the same year to rebate the royalty in the case of a discovery well situate in 'wild-cat' territory, all gave an assurance of the Government's intention to further the development of the natural resources.

At the same time as these concessions were being made in the leasing regulations a further encouragement was being given to companies to explore 'wild-cat' territory by the establishment of regulations for the issue of permits to prospect for petroleum and natural gas.

These permits could be taken out for six months upon payment of 5c for each acre covered by the application or for twelve months upon payment of 10c for each acre. Extensions of the permit were permissible under certain conditions upon payment of a monthly rental of 1c for each acre, but the work of the investigation had to be completed within the maximum of two years.

Under these amended regulations 585,882.78 acres were prospected during the period under review resulting in a total acreage of 776,505 being leased by the end of the year for actual drilling operations. It is anticipated with the very encouraging results so far obtained that many areas in addition to the Turner Valley will prove to contain crude oil.

At this juncture I would like to point out that while the development of the oil resources has unquestionably been the most spectacular section of our administration, it has by no means resulted in any lessening of effort to improve regulations for development of the other vast resources of the province. For this reason, therefore, it is of interest to inspect the work of the Department in its endeavour to encourage introduction of new capital with a view to the development of Alberta's great and widespread natural wealth."

To the above table showing annual departmental surpluses, the years 1937-38 and 1938-39 are added as follows:—

1937-38	$1,084,591.78
1938-39	1,155,088.15

It will be noted from the above that the year 1937-38 demonstrated the largest surplus of all up to that time. This was achieved in spite of the fact that the Game and Fisheries Divisions were transferred in May, 1937 to the Department of Agriculture with the loss to this Department of the attendant revenues from each.

In 1937-38 the introductory comments of my Report dealt principally with the formation of The Petroleum and Natural Gas Conservation Board and the increased necessity for greater fire protection in the Province's forested areas, the total fire loss for this year and the year preceding being the greatest in the life of the Department.

The following reproduction from this Report is given:—

"Notwithstanding that the Game and Fisheries divisions were transferred in the month of May, 1937 to the Department of Agriculture, the revenue of our Department continued to increase, resulting in a surplus of $1,084,591.78 in comparison with the previous year's profit of $996,719.59. We anticipate that our profit in the coming year will be substantially greater by reason of the expansion of operations in the drilling for oil on provincial lands.

Dealing with the oil industry, the increase in production is worthy of our attention. The total production of oil for the year was 3,680,099 barrels as compared with 1,447,661 barrels in the fiscal year 1936-37, an increase of 2,232,438 barrels. Of this production the greater portion came from the southern Turner Valley on the western flank of the structure.

The attitude of the Department towards the wastage of gas is so well known that we merely make passing reference to the deplorable situation that is now about to be overcome. As our Departmental Report for the year 1932-33 shows, The Turner Valley Gas Conservation Board was appointed in April, 1932 to continue the tests our Petroleum and Natural Gas Division had been conducting for some years, also to suggest the adoption of production methods to minimize the wastage of gas. The Board's recommendations will be found in our Annual Report for the year that ended March 31st, 1933.

The opposition of many operators to any change in their methods nullified the work of the Board; however, with the completion of the Turner Valley Royalties crude oil discovery well in June, 1936, the majority of the operators as well as the citizens of the province became conscious of the fact that speedy action was essential if the oil resources of Alberta were to be a leader in the investment field of Canada.

Having devided that the wastage of gas must be discontinued, the Government sought the assistance of the Department of Mines, United States of America, Washington, D.C., in selecting competent conservation engineers, and as a result Mr. W. F. Knode, of the firm of Messrs. Parker, Foran, Knode

and Boatright, of Corpus Christi, Texas, came to Edmonton and assisted with the drafting of legislation for the bringing into force of proper operating methods. The legislation made provision for a Board with power to conserve the oil and gas resources of Alberta, but some question was raised later as to the validity of the Act. To remove any doubt the Legislature was called into special session and as a result of their deliberation a new Act—'An Act for the Conservation of the Oil and Gas Resources of the Province of Alberta'—was assented to November 22nd, 1938. A copy of the Act immediately follows this section of the Report.

The development of the mineral resources has been left to private enterprise, the Department taking from production a reasonable share of gross revenue. In the opinion of many authorities this procedure is the more preferable way as such action tends to a more rapid type of development and gives to the province a fair revenue.

As to the settlement of lands in the province, we have refrained from granting homesteads in many areas where it was doubtful that the lands were capable of sustaining a settler. Consequently, the time is not far distant when a change may have to be made in the system that has been followed in placing settlers on land.

With the exception of the fiscal year 1935-36, the year under review shows the greatest number of land patents issued together with the largest area covered thereby since the transfer of the natural resources to this province. The number in question for this year totalled 2,266 covering an area of 382,382.437 acres as compared with the peak year of 1935-36 which totalled 2,965 with an area of 433,529.126 acres.

Included with the Technical Division's section of this Report is a chart showing the total area of acres patented in the province from October 1st, 1930, date of the natural resources transfer, to March 31st, 1938. During this seven and a half year period 12,641 land patents have been issued which cover an area of 1,924,694.314 acres.

Also included in this section of the Report it will be noted that reference is made to the fact that completion of the boundary between Alberta and Saskatchewan from the south shore of Lake Athabaska to the northern boundary of the province is being carried out.

It is necessary to refer to the Forestry section of this Report in connection with the devastating forest fires which occurred during the calendar year of 1937.

Total loss of timber, young growth and other property for the year came to $1,088,465.95, the worst period since the transfer of the resources with the exception of the preceding year, 1936, when the loss totalled $1,549,930.30. By a strange coincidence the fires in 1937 were mainly outside the forest reserves—chiefly in the northern part of the province—whereas in 1936 they were mainly inside the reserves along the general area of the Rocky Mountains.

The seriousness of the situation is shown in the Director's report by the revelation that from the season of 1931 to the conclusion of the 1937 season there have been 2,249 forest fires which burnt over an area in excess of 1,939,661 acres, of which 1,404,859 acres carried tree growth. This latter area supporting tree growth would measure, if in a solid block, approximately 50 miles in length by 22 miles in width. The loss of timber, young growth and other property over this period of years reveals the alarming total of $4,074,377.36 as shown in an itemized statement of this Report.

It has been repeatedly stated that Alberta's forests represent indirectly her most important resource. With the loss of vast blocks of growing timber

comes a shortage of water supply, not only to this province, but to others lying to the east of us. Forest cover conserves and regulates more than anything else the streamflow of rivers. With the loss of this flow, animal and fish life dies, a menace arises to sanitation in towns and cities, industrial life is handicapped and the final result is drought with intermittent floods.

Conservation of timber is of primary importance to the general life of this province and it will be imperative, if the present situation is to be changed, that not only must the personnel of the Forestry staff be considerably augmented but also that the present equipment be renewed and added to on a scale sufficiently generous to ensure that the dangerous situation which exists may be noticeably reduced."

On page 19 of the 1937-38 Report is given a reproduction in full of The Oil and Gas Resources Conservation Act, 1938. Copies of this Act, or the Annual Report in question which contains it, are available on application to the Department.

The foregoing review gives a summary of events covering a period of the first eight and a half years of this Department's administration and brings my review up to the current year, 1938-39, the Report for which is herewith presented.

In this present period it is necessary to emphasize once again the vital need for further protective measures covering the forested areas of Alberta. The present year presents the most devastating fire loss—$2,046,236.27—experienced yet in the Department's history. The Director of Forestry in his section of the Report gives a clear picture of this unfortunate loss and offers in detail the remedies necessary to meet the problem. The loss this year was almost entirely outside the provincial forest reserves and confined to the vast and thinly populated areas of the northern part of the Province.

Oil production in 1938-39 reached the highest annual total yet known of 6,651,321 barrels. The supply to an extended market, covering the majority of western Canada, was carried out for the first time. If a further extension to this market could have materialized during this period, the production total, without any danger to the general question of conservation, could have been a very much greater one.

Alberta, in the expansion of this new and extremely important industry, has come to a definite problem which can be solved only by an enlargement of market which will permit Alberta oil to compete over a wider area.

The development of Turner Valley this year has been intensive as demonstrated by the very noticeable increase of producing wells. Development of other fields has also kept pace with this activity. It is of first importance that this great industrial progression, so necessary now to both the Dominion and the Empire, should not be checked by a surplus of product vainly seeking a more extended market.

During this year Alberta placed the Dominion in the position of second largest oil producer in the British Empire, tied with Burma and Bahrein Island in the Persian Gulf.

Also in this year, amongst the 19 countries of the world to show increases in oil production, Canada took third place. Russia was first with 10,818,000 barrels, Venezuela second with 4,741,000 and Canada third with 4,000,289 barrels. Practically half of the Empire's total increase of 8,087,824 barrels for the calendar year 1938 was produced by Canada. Alberta produced 97.09 per cent of Canada's total and Alberta's source of supply for this period was almost entirely the southern section of the Turner Valley field.

Department's Revenue and Production, 1938-39

Revenue for the fiscal year under review, 1938-39, amounted to $1,864,712.75, the highest of any year since the creation of this Department and showing an increase over the previous year of $258,556.25. Expenditure for the year totalled $709,624.60, an increase of $188,059.88. The principal cause of this increase of expenditure was due to the increased heavy fire fighting costs which amounted to $156,880.28, together with $21,702.97, representing administration cost of the Special Areas Board, which was transferred to this Department in April, 1938. An itemized statement, showing revenue increases and decreases, is given on the first page of the Accounting Division's section of this Report. Income revenue covering fees, rentals, bonuses and royalties covering development of the non-metallic minerals showed an increase of $317,176.91.

Petroleum production showed once again a very noticeable increase with 2,971,222 barrels in excess of last year's figure. This was due to new wells continually being brought into production in the crude oil zone of Turner Valley which, under control of a moderate but safe quota, supplied for the first time the new market area of eastern British Columbia, Alberta, Saskatchewan and the greater part of Manitoba.

Gas consumption decreased 3,585,367 Mcf due to small decreases in deliveries to the Calgary-Lethbridge system and Medicine Hat resulting from weather conditions and their effect on heating problems. Fuel for drilling in Turner Valley was considerably lower than in the previous year and storage of gas in Bow Island ceased early in February, 1939, two other factors accounting for the decrease in total of consumption.

Coal produced during the calendar year, 1938 showed a decrease of 321,657 tons in comparison with the calendar year 1937. Coke production over the same period increased by 2,725 tons and briquettes by 12,195 tons. Electrical power used in the operation of coal-mines during the year decreased by 871,829 k.w. hrs.

Shale mined during the calendar year decreased by 7,215 tons with a decrease of 2,337,480 bricks manufactured therefrom; cement production increased by 37,267 barrels, and lime by 1,402 tons.

At the close of the year under review the Technical Division reported a total of 2,874 land patents issued, covering an area of 517,435.896 acres. This represents the greatest area patented by the Crown since the creation of this Department and the second largest number of land patents issued within this period.

The peak year in total number of patents was that of 1935-36 which totalled 2,965 with an area of 433,529.126 acres.

As in the previous Report a chart is included in the Technical Division's section which shows the total area of acres patented in the Province from October 1st, 1930, date of the natural resources transfer, to March 31st, 1939. During this eight and a half year period 15,515 land patents have been issued which covered an area of 2,442,130.210 acres.

Provincial and School Lands Administration

The School Lands Division of this Department was on May 1st, 1938 amalgamated with the Provincial Lands Division, the control of the two Divisions coming under the Director of Lands.

Homestead Entries.—First and second homestead entries and soldier grants during the year totalled 1,353 covering approximately 216,480 acres in comparison with 1,600 covering approximately 256,000 acres for the preceding year.

Comparative statement follows showing totals of homestead entries and soldier grants from 1930-31 to 1938-39. Fuller details of this information appear

in the Accounting Division's section of this Report, Statement G, and in similar sections of the Departmental Annual Reports of preceding years.

HOMESTEAD ENTRIES GRANTED

Fiscal Year	Homesteads	Second Homesteads	Soldier Grants	Total	Homesteads Granted to Women
1930-31	3,042	557	149	3,748	.....
1931-32	3,876	522	30	4,428	1,521
1932-33	3,112	358	29	3,499	976
1933-34	2,984	696	26	3,706	1,011
1934-35	2,425	325	30	2,780	835
1935-36	1,329	186	13	1,528	455
1936-37	1,296	129	7	1,432	479
1937-38	1,479	111	10	1,600	585
1938-39	1,277	73	3	1,353	513
Totals	20,820	2,957	297	24,074	6,375
Decreases this year in comparson with last	202	38	7	247	72

NOTE.—Homesteads for women were not available until 1932. The total number of women's homesteads as shown in the above statement is included in the first homestead total.

Discontinuance of Homesteads.—On March 24th, 1939, the right to secure first homesteads, second homesteads or soldier grants was withdrawn, together with the right to make application for homestead cancellation.

Details in connection with this regulation, together with information on other subjects pertaining to the administration of provincial and school lands are given in the Director of Lands' section of this Report.

Mining Lands Administration

Introduction to Report.—Introduction to the Report of the Mining Lands Division gives production quantities of the Alberta non-metallic minerals for the year and their respective values, methods for disposal of mineral rights, sources of revenue—fees, rentals, bonuses and royalties—and information regarding reservations of large areas for geological examination.

Leases dealt with.—Statements showing types of leases, dating from October 1st, 1930, to March 31st, 1939—active at date of transfer, issued, divided, cancelled, renewed and active at the close of the period under review—are also given. The leases deal with the development of petroleum, natural gas, coal, quarrying, quartz mining, salt, bituminous sands and dredging.

Totals of leases from October 1st, 1930—date of the natural resources transfer —to March 31st, 1939 are shown as follows:—Leases active at date of transfer, 19,635; issued, 7,872; divided, 184; cancelled, 21,483; renewed, 250; active at March 31st, 1939, 5,958. Areas covered by same are given in a separate statement. Additional statements deal with permits to prospect, reservations issued, and fees, rentals, bonuses and royalties collected.

Coal.—As in previous years a table showing royalties collected on coal is given. The table is dated from the fiscal year 1907-08 to 1938-39.

Revenue.—Income revenue credited to the Division for this year totalled $1,210,765.48, showing an increase of $317,176.91 over the previous year.

Petroleum and Natural Gas

The section of the Report devoted to petroleum and natural gas deals in its introductory remarks with the rapid progress made during the year in the development of the Turner Valley field, together with the increased prospecting work which was accomplished in other parts of the Province.

Reference to the importance which must necessarily be attached to the introduction of The Petroleum and Natural Gas Conservation Board, created during the year, is made. The Act, by control of which the Board functions, is referred to—its introduction in April, 1938 and its subsequent repeal and re-enactment in

November, 1938—and the wide powers which it gave for the control and regulation of well-drilling and production in the producing oil zone with the object of establishing conservation of the petroleum and gas resources of the Province.

Reference is made to a Royal Commission which opened sittings in November, 1938 and its examination of many phases which covered the production and marketing of oil.

During this period a Schedule of Wells drilled in Alberta for oil and gas to 1938 was published—late in 1938. Data in this work gives reference to casings, water occurrences, gas and oil and a summary of geological markers for each individual well.

Drilling activity outside of Turner Valley is reviewed and a summary covering each area in which operations were conducted throughout the year is included.

Other material relative to a detailed list of Turner Valley completions, divisional inspection of wells, work of the geological and chemical laboratories and analyses of Turner Valley crude oils is also presented.

ALBERTA OIL PRODUCTION BY FISCAL YEARS

Period	Barrels	Period	Barrels
1914 to close of fiscal year, 1928-29	1,453,404	Fiscal year 1934-35	1,246,958
Fiscal year, 1929-30	1,135,014	1935-36	1,249,596
1930-31	1,614,202	1936-37	1,447,661
1931-32	1,246,328	1937-38	3,680,099
1932-33	871,082	1938-39	6,651,321
1933-34	1,141,473	Total	21,737,138
Increase this year in comparison with last			2,971,222

ALBERTA OIL PRODUCTION BY CALENDAR YEARS

Calendar Year	Barrels	Calendar Year	Barrels
1914 to 1924	96,504	1933	1,013,040
1925	168,643	1934	1,265,940
1926	219,598	1935	1,263,750
1927	332,133	1936	1,320,442
1928	489,531	1937	2,796,908
1929	999,152	1938	6,742,039
1930	1,433,844		
1931	1,455,195	Total	20,514,341
1932	917,622		
Increase this year in comparison with last			3,945,131

NATURAL GAS CONSUMPTION

Fiscal Year	Mcf.
1929-30	23,228,637
1930-31	23,312,006
1931-32	18,327,139
1932-33	16,061,383
1933-34	16,346,376
1934-35	16,600,059
1935-36	18,674,944
1936-37	18,727,496
1937-38	29,212,267
1938-39	25,626,900
Total	206,117,207
Decrease this year in comparison wth last	3,585,367

Coal

Alberta coal production for the calendar year, 1938 totalled 5,230,025 tons with a valuation of $13,702,983.41, a decrease of 321,657 tons in comparison with the preceding year. Coal mined by farmers under permit for their own use amounted to 585 tons. This figure is not included in the yearly production total just given. As in the previous year a considerable tonnage was produced without either permit or lease of which there is no record.

Production of coke for the calendar year, 1938 increased by 2,725 tons and of briquettes by 12,195 tons.

Disposition of Coal in 1938.—Coal sold for consumption in Alberta totalled 1,278,932 tons; sold for consumption in other provinces of Canada, 1,737,499

tons; sold for consumption in the United States, 32,507 tons; sold to railway companies for locomotive use, 1,871,852 tons; used in making briquettes, 39,302 tons; used for making coke, 103,498 tons; used under colliery boilers, 136,833 tons; used by colliery railways, 6,240 tons; put to stock 44,659 tons and put to waste, 36,173 tons. The above tonnages include coal lifted from stock and waste heaps, which is not included in the total output.

COAL PRODUCTION

Calendar Year	Tonnage	Valuation
1930	5,755,911	$19,379,000.00
1931	4,564,290	13,415,745.00
1932	4,870,030	13,441,193.00
1933	4,714,784	12,197,339.00
1934	4,748,848	12,440,616.53
1935	5,462,973	13,946,338.15
1936	5,696,375	14,720,004.06
1937	5,551,682	14,434,969.75
1938	5,230,025	13,702,983.41
TOTALS	46,594,918	$127,678,188.90
Decreases this year in comparison with last	321,657	$ 731,986.34

PRODUCTION OF COKE AND BRIQUETTES

Calendar Year	Coke (Tons)	Briquettes (Tons)
1930	.....	24,111
1931	.....	15,102
1932	2,183	13,582
1933	49,279	16,104
1934	59,703	15,906
1935	63,428	18,812
1936	65,239	21,015
1937	65,967	27,044
1938	68,692	39,239
TOTALS	374,491	190,915
Increases this year in comparison with last	2,725	12,195

Disposition of Electrical Power for Alberta coal-mines in 1938.—Purchased electrical power used by Alberta coal-mines during the calendar year, 1938 totalled 24,611,920 k.w.hrs.

ELECTRICAL POWER USED FOR OPERATION OF ALBERTA COAL-MINES

Calendar Year	K.w.hrs.
1930	25,003,606
1931	16,918,625
1932	14,875,890
1933	17,611,959
1934	19,447,621
1935	23,111,373
1936	24,912,243
1937	25,483,749
1938	24,611,920
TOTAL	191,976,986
Decrease this year in comparison with last	871,829

Shale and Clay Mined

During the calendar year, 1938 there were four shale pits in operation. Production from same totalled 19,929 tons of shale from which 7,609,314 bricks and 1,640 tons of hollow tile were manufactured.

Calendar Year	Shale Mined (Tons)	Bricks Manufactured (Number)	Tiles Manufactured (Tons)
1930	67,517	22,007,045	.....
1931	23,855	7,091,080	2,825
1932	8,446	3,444,010	182
1933	3,234	1,221,060	.....
1934	13,561	4,398,032	1,171
1935	20,258	7,349,300	.....
1936	24,588	8,963,384	.....
1937	27,144	9,946,794	252
1938	19,929	7,609,314	1,640
TOTALS	208,532	72,030,019	6,070
	Decrease	Decrease	Increase
This year in comparison with last	7,215	2,337,480	1,388

Mines Branch Annual Report.—Statistical information covering Alberta's coal-mining activities and production of shale and clay mined for the calendar year, 1938 is given in complete detail in the published Annual Report of the Mines Branch, Department of Lands and Mines, for this period which appears as a separate publication to this Report.

Forest Service

Fire Season.—The seriousness of the fire situation this year has already been mentioned. The total loss, $2,046,236.27, is the greatest yet experienced by this Department and it is only to be hoped that a repetition of this disastrous occurrence will not be known.

On the following page is given the summary of fire losses showing annual figures since the transfer of the resources. This statement is a condensed form of the larger and more detailed one which appears each year in the Forestry Section of the Report.

The statement on the next page supplies information covering numbers of fires, areas affected, salvable and unsalvable timber, suppression costs and total loss. Suppression cost during the life of the Department now reaches a total of $589,904.46 and total loss from fires over this period, $6,120,613.63.

As previously stated the fires this year were almost entirely outside the forest reserves and confined to northern Alberta. Last year the situation was very similar in that the various conflagrations took place mostly outside the reserves, although the year prior to that the bulk of the fires took place within them.

Timber Industry.—The lessened demand for lumber at the close of the previous year resulted in a reduction of over seventeen per cent in lumber manufacture for the year under review with little hope at the present time of an increase in demand for either export or local needs. The exception to this depressed situation was the recovery in the manufacture of railway ties, the increase in which was the same percentage figure as that of the lumber manufacture's decrease. Contract prices on railway ties showed no change.

Grazing on Forest Reserves.—Grazing on forest reserves showed both increases and decreases for the year. The number of grazing permits issued were decreased by 92; cattle increased by 3,359; horses decreased by 394, and sheep increased by 1,617.

Youth Forestry Training Project.—The camp on the Highwood River continued the work of the previous year in giving training to unemployed young men and supplying them with knowledge in elementary forestry.

The project is entered into jointly by the Dominion and the Province and is proving of real benefit in fitting unemployed youth with technical training with a view to future permanent employment either in forestry or in industries directly connected with same.

SUMMARY OF FIRE LOSSES WITHIN ALBERTA FOREST RESERVES

Period	Number of Fires	Cost of Suppression	Area (Acres)	Salvable Timber M.f.b.m.	Salvable Timber (Cords)	Unsalvable Timber M.f.b.m.	Unsalvable Timber (Cords)	Total Loss
October 1, 1930 to March 31, 1931	9	$ 551.67	41.925	.....	.....	2.00	129.00	$ 71.69
April 1, 1931 to December 31, 1931	31	17,624.12	52,218.05	2,370.50	3,086	6,295.73	111,599.00	154,651.47
Calendar Year 1932	32	3,491.04	2,555.75	8.00	15,863	3,845.00	1,005.60	8,790.73
Calendar Year 1933	39	18,409.92	29,275.88	26.75	1,201	19,188.25	108,414.00	95,796.93
Calendar Year 1934	47	31,118.51	21,963.00	1,510.00	9,200	2,661.00	209,550.00	96,195.87
Calendar Year 1935	12	94.56	6.50	.....	.....	.....	60.00	45.50
Calendar Year 1936	52	108,894.48	165,465.00	7,573.00	25	885,192.00	764,594.00	1,504,273.45
Calendar Year 1937	17	387.38	90.00	.....	.....	37,500.00	8.50	292.05
Calendar Year 1938	18	9,422.79	13,111.50	13,740.00	5	518.50	1.50	36,556.45
TOTALS	257	$189,994.47	284,727.605	25,228.25	29,380	955,202.48	1,195,361.60	$1,896,674.14

SUMMARY OF FIRE LOSSES OUTSIDE ALBERT A FOREST RESERVES

October 1, 1930 to March 31, 1931	47	$ 686.64	11,145.19	155.00	.....	3.75	.....	$ 79,950.85
April 1, 1931 to December 31, 1931	591	82,088.89	552,658.07	134,536.00	104,199.00	122,690.50	684,625.50	712,835.79
Calendar Year 1932	347	15,320.51	133,562.14	274.75	12,215.00	40,627.15	132,743.00	152,085.58
Calendar Year 1933	249	16,971.75	64,489.12	4,383.50	13,953.50	41,694.50	59,545.00	100,008.43
Calendar Year 1934	193	7,050.51	36,907.00	3,404.50	3,159.00	547.50	14,464.00	29,825.77
Calendar Year 1935	85	1,558.90	6,313.25	160.00	1,195.00	1,513.00	5,371.00	5,722.50
Calendar Year 1936	196	13,647.81	38,989.00	2,374.00	23,116.00	659.00	6,017.00	45,656.85
Calendar Year 1937	358	54,952.28	835,169.00	14,702.00	33,113.00	251,544.00	609,837.00	1,088,173.90
Calendar Year 1938	503	207,632.70	1,745,234.00	35,382.50	23,054.00	650,844.50	1,974,651.50	2,009,679.82
TOTALS	2,569	$399,909.99	3,424,466.77	195,372.25	214,004.50	1,110,123.90	3,487,254.00	$4,223,939.49

SUMMARY OF FIRE LOSSES WITHIN AND OUTSIDE ALBERTA FOREST RESERVES

October 1, 1930 to March 31, 1931	56	$ 1,238.31	11,187.115	155.00	.....	5.75	129.00	$ 80,022.54
April 1, 1931 to December 31, 1931	622	99,713.01	604,876.12	136,906.50	107,285.00	128,986.23	796,224.50	867,487.26
Calendar Year 1932	379	18,811.55	136,117.89	282.75	28,078.00	44,472.15	133,748.60	160,876.31
Calendar Year 1933	288	35,381.67	93,765.00	4,410.25	15,154.50	60,882.75	167,959.00	195,805.36
Calendar Year 1934	240	38,169.02	58,870.00	4,914.50	12,359.00	3,208.50	224,014.00	126,021.64
Calendar Year 1935	97	1,653.46	6,319.75	160.00	1,195.00	1,513.00	5,431.00	5,768.00
Calendar Year 1936	248	122,542.29	204,454.00	9,947.00	23,141.00	885,851.00	770,611.00	1,549,930.30
Calendar Year 1937	375	55,339.66	835,259.00	14,702.00	33,113.00	289,044.00	609,845.50	1,088,465.95
Calendar Year 1938	521	217,055.49	1,758,345.50	49,122.50	23,059.00	651,363.00	1,974,653.00	2,046,236.27
TOTALS	2,826	$589,904.46	3,709,194.375	220,600.50	243,384.50	2,065,326.38	4,682,615.60	$6,120,613.63

Technical Division

Issue of Notifications (Land Patents).—As already stated, the present year under review shows the greatest area patented in any year since the formation of this Department. In number of land patents issued the year 1935-36 comes first with a total of 2,965, with the present year second with 2,874.

The following comparative statement gives totals by fiscal years from 1930-31 to 1938-39:

NOTIFICATIONS ISSUED

Fiscal Year	Number of Notifications	Area, Acres
1930-31	23	3,019.710
1931-32	784	111,424.478
1932-33	1,260	178,887.233
1933-34	1,106	165,224.553
1934-35	2,006	324,611.398
1935-36	2,965	433,529.126
1936-37	2,231	325,615.379
1937-38	2,266	382,382.437
1938-39	2,874	517,435.896
Totals	15,515	2,442,130.210
Increases this year in comparison with last	608	135,053.459

Lands transferred from the Dominion to the Province.—Lands transferred to the Province from the Dominion Government during this period included Wawaskesy National Park, Elk Island Park and Cooking Lake Forest Reserve, Admiralty and Ordnance lands and lands of the Soldier Settlement Board.

Wharf and Shipyard Sites.—An area of 2.27 acres for the maintenance of a wharf-site at Sylvan Lake was set apart and the leasing of 15.32 acres near McMurray for a shipyard-site to the Hudson's Bay Company was effected. Also under this heading, an area of 1.29 acres was reserved unto the Dominion Government for the erection of a pier at Ma-me-o Beach, Pigeon Lake.

Metis Colonies.—The dedication of certain areas considered suitable for the settlement of members of any Metis association was brought into effect by orders in council. The colonies in question are described in detail in the report of the Technical Division.

New Surveys.—Information dealing with new surveys, completed and under way, is given in detail by the Division.

New Maps.—New maps prepared during the year dealt with available school lands, Turner Valley oil area showing the location of producing wells and special areas. Good progress was made on the natural resources map which was well advanced in general detail by the close of the year.

The disposal of maps from the Technical Division is increasing. Distribution is made continually from the office to various Government Departments and to the general public and also by mail over a wide area.

Staff

I would like once again to express my appreciation to all members of the staff of this Department for their loyalty and for their intensive application to their many responsible duties.

Individual detailed reports from the various Divisions of the Department follow.

Your obedient servant,

J. Harvie,
Deputy Minister.

Edmonton, December 6th, 1939.

1939

Chapter 34

An Act to Amend and Consolidate the Special Areas Act, 1938

(*Assented to March* 31, 1939.)

HIS MAJESTY, by and with the advice and consent of the Legislative Assembly of the Province of Alberta, enacts as follows:

Short title

1. This Act may be cited as "*The Special Areas Act,* 1939."

Definitions

2. In this Act, unless the context otherwise requires,—

"Board"

(*a*) "Board" means the Special Areas Board appointed pursuant to this Act;

"Department"

(*b*) "Department" means the Department of Lands and Mines;

"Land"

(*c*) "Land" includes in addition to its ordinary meaning buildings and improvements thereon, but does not include any minerals therein or thereunder;

"Minister"

(*d*) "Minister" means the Minister of Lands and Mines;

"Municipality"

(*e*) "Municipality" means any municipal district or improvement district or part thereof included in a Special Area;

"Person"

(*f*) "Person" includes a partnership or corporation;

"Public lands"

(*g*) "Public Lands" means unsubdivided lands situated in a Special Area which have been transferred to the Crown under the provisions of this Act, or which are Provincial lands or school lands within the meaning of *The Provincial Lands Act,* 1931, or which are designated as Public Lands pursuant to any provisions of this Act;

"Ratepayer"

(*h*) "Ratepayer" means the person with the right of possession of land and includes any lessee of public lands;

"Special Area"

(*i*) "Special Area" means any Special Area constituted under the authority of this Act and includes Tilley East, Berry Creek, Sounding Creek, Sullivan Lake, Neutral Hills and Bow West, now constituted as Special Municipal Areas;

"Unsubdivided Lands"

(*j*) "Unsubdivided Lands" means all land other than and except land subdivided into lots and blocks as a townsite, a plan of which is registered in a Land Titles Office.

Constitution of Special Areas

3. Each of the areas in the Province next hereinafter described is hereby constituted as a Special Area; the area first so described shall be known as The Tilley East Special Area, the area secondly so described shall be known as The Berry Creek-Sullivan Lake Special Area, the area thirdly so described shall be known as The Sounding Creek-Neutral Hills Special Area, and the area fourthly so described shall be known as The Bow West Special Area.

The description of the areas hereinbefore mentioned is as follows:

1.—The Tilley East Special Area.

Tilley East Special Area

All that part of the Province of Alberta except so much thereof as is included within the corporate boundaries of any town or village, described as follows:

Commencing at the north-east corner of township 12, range 1, west of the 4th meridian; thence northerly along the said 4th meridian to its intersection with the left bank of the Red Deer River, in township 23; thence in a generally westerly direction along the said left bank to its intersection with the range line between ranges 10 and 11 in township 21; thence southerly along the road allowance between the said ranges to the south-east corner of township 14, range 11; thence westerly along the road allowance between townships 13 and 14 to the intersection of the said road allowance with the left bank of the Bow River; thence in a generally southerly and westerly direction along the left bank of the Bow River and continuing to township 11, range 13; thence in a generally easterly and northerly direction along the left bank of the Saskatchewan River to the intersection of the said bank with the east boundary of section 34, township 12, range 6; thence northerly to the south-east corner of the north-east quarter of the said section; thence westerly to the south-west corner thereof; thence northerly along the west boundary of the north-east quarter to the south boundary of section 3, township 13, range 6; thence easterly along the south boundary of sections 3 and 2 in the said township to the south-east corner of section 2; thence northerly along the east boundary of section 2 to the north-east corner of the south-east quarter of the said section; thence easterly along the south boundary of the north half of section 1, township 13, range 6, and along the south boundary of the north half of sections 5 and 6, township 13, range 5, to the intersection of the said boundary with the left bank of the South Saskatchewan River; thence southerly along the said left bank to the intersection of the bank with the road allowance between townships 12 and 13; thence easterly along the said road allowance to the point of commencement, all west of the 4th meridian.

2.—Berry Creek-Sullivan Lake Special Area

Berry Creek-Sullivan Lake Special Area

All that part of the Province except so much thereof as is included within the corporate boundaries of any town or village, described as follows:

Commencing at the north-east corner of township 37, range 8, west of the 4th meridian; thence westerly along the road allowance between townships 37 and 38, to the road allowance between ranges 9 and 10; thence southerly along the said road allowance to the south-east corner of township 35, range 10; thence westerly along the road allowance between townships 34 and 35 to the intersection of the road allowance with the east shore of Sullivan Lake; thence southerly and westerly along the said shore of Sullivan Lake to the north-west corner of township 33, range 14, west of the 4th meridian; thence westerly along the road allowance between townships 33 and 34 to the north-west corner of township 33, range 15, west of the 4th meridian; thence southerly along the road allowance between ranges 15 and 16 to the south-west corner of township 31, range 15, west of the 4th meridian; thence westerly along the road allowance between townships 30 and 31 to the north-west corner of township 30, range 16, west of the 4th meridian; thence southerly along the road allowance between ranges 16 and 17 to the south-west corner of township 29, range 16, west of the 4th meridian; thence westerly along the road allowance between townships 28 and 29 to the north-

west corner of township 28, range 18, west of the 4th meridian; thence southerly along the road allowance between ranges 18 and 19 to the south-west corner of section 19, township 28, range 18, west of the 4th meridian; thence easterly along the south boundary of the said section 19 to the north-west corner of section 17, township 28, range 18, west of the 4th meridian; thence southerly along the west boundary of sections 17 and 8 of the said township to the south-west corner of section 8; thence easterly along the south boundary of sections 8 and 9 to the north-west corner of the north-east quarter of section 4 of the said township; thence southerly along the west boundary of the east half of the said section 4 to the south-west corner of the south-east quarter of the said section; thence easterly to the south-east corner of the said section; thence southerly along the west boundary of section 34, township 27, range 18, west of the 4th meridian to the south-west corner of the north-west quarter of section 34; thence easterly along the south boundary of the north-west quarter of the said section to the south-east corner thereof; thence southerly along the west boundary of the east halves of sections 34, 27 and 22, township 27, range 18, west of the 4th meridian to the intersection of the said boundary with the left bank of the Red Deer River; thence southerly and easterly along the sinuosities of the said bank to the intersection of the said bank with the range line between ranges 7 and 8; thence northerly along the said range line between ranges 7 and 8, to the point of commencement.

3.—The Sounding Creek-Neutral Hills Special Area

All that part of the Province excepting so much thereof as is included within the corporate boundaries of any town or village described as follows: Sounding Creek-Neutral Hills Special Area

Commencing at the north-east corner of township 35, range 1, west of the 4th meridian; thence westerly along the road allowance between townships 35 and 36 to the north-west corner of township 35, range 3; thence northerly along the road allowance between ranges 3 and 4 to the north-west corner of township 37, range 3; thence westerly along the road allowance between townships 37 and 38 to the north-west corner of township 37, range 7; thence southerly along the range line between ranges 7 and 8 to the intersection of the said range line with the left bank of the Red Deer River in township 23; thence in a generally easterly direction along the said left bank of the Red Deer River to the intersection with the east boundary of section 13 in township 23, range 4; thence northerly along the road allowance between ranges 3 and 4 to the north-west corner of township 26, range 3; thence easterly along the road allowance between townships 26 and 27 to the intersection with the 4th meridian; thence northerly and along the said 4th meridian to the point of commencement; all west of the 4th meridian.

4.—The Bow West Special Area

All that part of the Province except so much thereof as is included within the corporate boundaries of any town or village described as follows: Bow West Special Area

Commencing at the south-east corner of township 12, range 17, west of the 4th meridian; thence northerly along the range line between ranges 16 and 17 to the intersection with the north boundary

of township 14; thence easterly along the north boundary of township 14 to the intersection with the right bank of the Bow River; thence in a generally north-westerly direction upstream along the said right bank of the Bow River to the intersection with a line dividing the north and south halves of township 20, in range 19; thence westerly along the said divided line and continuing westerly to the intersection with the range line between ranges 20 and 21; thence southerly along the said range line between ranges 20 and 21 to the north boundary of township 16; thence westerly along the said north boundary of township 16 to the intersection with the range line between ranges 21 and 22; thence southerly along the said range line between ranges 21 and 22 to the north boundary of township 13; thence easterly along the said north boundary of township 13 to the north-east corner of section 32, township 13, range 20; thence southerly along the east boundary of the said section 32 to the south-east corner of the north-east quarter of the said section 32; thence westerly along the south boundary of the north half of section 32 to the south-west corner of the north-west quarter of section 32; thence southerly along the west boundary of the south-west quarter of section 32 to the south-west corner thereof; thence westerly along the south boundary of the south-east quarter of section 31 to the south-west corner thereof; thence southerly along the west boundary of the east half of section 30 and along the west boundary of the east half of section 19 to the south-west corner of the south-east quarter of the said section 19; thence easterly along the south boundary of the said south-east quarter of section 19 to the south-east corner thereof; thence southerly along the east boundary of the north-east quarter of section 18 to the south-east corner thereof; thence easterly and along the south boundary of the north-west quarter of section 17 to the south-east corner thereof; thence southerly along the west boundary of the south-east quarter of the said section 17 to the south-west corner thereof; thence easterly and along the south boundary of the said south-east quarter of section 17 to the south-east corner thereof; thence southerly along the road allowance between sections 8 and 9 in township 13, range 20, to the north-east corner of section 20 of township 12, range 20; thence easterly along the north boundary of the north-west quarter of section 21 to the north-east corner thereof; thence southerly along the east boundary of the said north-west quarter of section 21 to the south-east corner thereof; thence easterly along the south boundary of the north-east quarter of section 21 and the north-west quarter of section 22 to the south-east corner of the said north-west quarter of section 22; thence southerly along the west boundary of the south-east quarter of section 22 to the south-west corner thereof; thence easterly along the south boundary of the south-east quarter of the said section 22 to the south-east corner thereof; thence southerly along the east boundary of the north-east quarter of section 15 to the south-east corner thereof; thence easterly along the south boundary of the north halves of sections 14 and 13 to the south-west corner of the north-east quarter of the said section 13; thence northerly along the west boundary of the said north-east quarter of section 13 to the north-west corner thereof; thence easterly along the north boundary of the said north-east quarter of section 13 to the north-east corner thereof; thence northerly along the east boundary of section 24 to the north-east corner thereof; thence easterly along the south bound-

ary of the south-west quarter of section 30 in township 12, range 19, to the south-east corner thereof; thence northerly along the east boundary of the said south-west quarter of section 30 to the north-east corner thereof; thence easterly along the south boundary of the north halves of sections 30 and 29 to the north-east corner of the south-west quarter of the said section 29; thence southerly along the east boundary thereof to the south-east corner thereof; thence easterly along the south boundary of the south-east quarter of the said section 29 to the south-east corner thereof; thence southerly along the east boundaries of sections 20 and 17 to the south-east corner of the north-east quarter of the said section 17; thence easterly along the south boundary of the north-west quarter of section 16 to the south-east corner thereof; thence southerly along the centre line of sections 16 and 9 to the south-west corner of the north-east quarter of section 9; thence easterly along the south boundary of the said north-east quarter of section 9 to the south-east corner thereof; thence southerly and along the east boundary of the south-east quarter of the said section 9 to the south-east corner thereof; thence easterly along the south boundary of the south-west quarter of section 10 to the south-east corner thereof; thence southerly along the west boundary of the north-east quarter of section 3 to the south-west corner thereof; thence easterly along the south boundary of the said north-east quarter of section 3 to the south-east corner thereof; thence southerly along the road allowance between sections 2 and 3 to the south-east corner of the south-east quarter of section 27 in township 11, range 19; thence westerly along the south boundary of the south-east quarter of the said section 27 to the south-west corner thereof; thence southerly through the centre of sections 22, 15 and 10 to the south-west corner of the north-east quarter of the said section 10; thence easterly along the south boundary of the said north-east quarter of the said section 10 to the south-east corner thereof; thence southerly along the road allowance between sections 10 and 11 to the intersection with the left bank of the Old Man River; thence in a generally south-easterly and northerly direction downstream along the said left bank of the Old Man River to the intersection with the south boundary of township 12, range 16; thence westerly along the south boundary of the said township 12 to the point of commencement, all west of the 4th Meridian.

Powers of Lieutenant Governor in Council

4. The Lieutenant Governor in Council shall have power notwithstanding the provisions of any other Act,—

(*a*) to increase any Special Area by the addition of land, or decrease any Special Area by the withdrawal of land;

(*b*) to appoint a Board of not more than three members, who shall perform such duties and exercise such powers pertaining to a Special Area, or Special Areas which are imposed or conferred upon the Minister by this Act as may from time to time be assigned by the Minister to such Board;

(*c*) to appoint such officers, servants, and employees as may be necessary for the administration of this Act and to prescribe their respective duties;

(*d*) to make such orders and regulations for the administration of any Special Area, or Special Areas as may be deemed proper, and authorize the carrying out of any scheme or

plans for the rehabilitation or betterment of any Special Area and the inhabitants thereof;

(*e*) upon the recommendation of the Minister to provide for the compromise of arrears of taxes owing by any person in respect to any land in a Special Area and fix the amount which shall be accepted in satisfaction thereof and the manner in and the times at which any sum so fixed shall be paid;

(*f*) upon the recommendation of the Minister to provide for the compromise of arrears of rentals, dues, fees or other charges owing by any person in respect to any public land in a Special Area and fix the amount which shall be accepted in satisfaction thereof and the manner in and the times at which any sum so fixed shall be paid;

(*g*) upon the recommendation of the Minister to make regulations either generally or with respect to any area or with respect to any designated part or parts of any area as to the running at large of domestic animals or any designated kind or kinds thereof, either during the entire year or during any designated part or parts thereof, and either by the prohibition or the permission of the running at large of all or any domestic animals or by both prohibition and permission and to prescribe what shall and what shall not be deemed to be a lawful fence and to prescribe the terms and conditions under which any designated kind or description of domestic animals may be permitted to run at large, or to be grazed upon unfenced lands, and for the impoundment and sale of any animal running at large in contravention of any such regulations.

Special Areas constituted special districts

5.—(1) As and from the first day of April,1939, each special area constituted pursuant to this Act shall be a Special District and shall be assigned a distinctive number by the Minister and its title shall be the words "Special District" followed by such number as is assigned to it by the Minister.

Exclusion of parts of municipal districts in special areas

(2) Any part of any special area which immediately before the first day of April, 1939, formed part of any municipal district shall be excluded from such municipal district in the Special District constituted by this Act as if such exclusion and inclusion had been effected pursuant to an order of the Minister of Municipal Affairs made pursuant to section 16 of *The Municipal District Act* and the provisions of section 17 of that Act shall be applicable thereto.

Disorganization of muncipal districts in Special Areas

(3) Every municipal district which was immediately before the first day of April, 1939, wholly included within the boundaries of any special area shall on the first day of April, 1939, be dissolved and the area thereof shall be included in the Special District constituted by this Act by order of the Lieutenant Governor in Council as if such dissolution and inclusion had been effected pursuant to section 19 of *The Municipal District Act* and all the provisions of that section shall apply thereto.

Application of The Improvement Districts Act, 1927, to Special Districts

6.—(1) Save and except only as is expressly otherwise provided in this Act, all the provisions of *The Improvement Districts Act,* 1927, shall apply to every Special District as if the same were an improvement district constituted pursuant to that Act.

(2) In relation to any Special District all the powers, duties, rights and capacities which are by *The Improvement Districts Act,* 1927, vested in or conferred or imposed upon the Minister of Municipal Affairs shall be vested in, conferred upon and imposed upon the Minister of Lands and Mines and all the powers, duties, rights and capacities which are by that Act vested in or conferred or imposed upon the Deputy Minister of Municipal Affairs shall be vested in, conferred upon and imposed upon the Deputy Minister of Lands and Mines, and all the powers, duties, rights and capacities which are by that Act vested in or conferred or imposed upon the Department of Municipal Affairs shall be vested in, conferred upon and imposed upon the Department of Lands and Mines, as if the Minister of Lands and Mines had been named therein wherever the Minister of Municipal Affairs is named therein, and as if the Deputy Minister of Lands and Mines had been named therein wherever the Deputy Minister of Municipal Affairs is named therein, and as if the Department of Lands and Mines had been named therein wherever the Department of Municipal Affairs is named therein.

Mill rate on agricultural land in Special Districts

7. Notwithstanding any provision to the contrary contained in *The Improvement Districts Act,* 1927, or in *The Assessment Act,*—

(*a*) the mill rate for the levying of taxes leviable under the provisions of *The Improvement Districts Act,* 1927, for the purposes of that Act in respect of any land in a Special District which is agricultural land shall be such rate on the dollar of the assessed value of such land as may be fixed from time to time by the Lieutenant Governor in Council;

(*b*) the mill rate for the levying of taxes leviable under *The School Act,* 1931, or *The School Assessment Act,* 1931, in respect of any land in a Special District which is agricultural land shall be such rate on the dollar on the assessed value of such land as may be fixed from time to time by the Lieutenant Governor in Council.

Deficiencies in revenue in Special Districts and included school districts

8. In case in any year the amount of taxes levied and collectable in any year in any Special District or in any School District included therein is insufficient to defray the expenditures of the Special District or any such school district, the Provincial Treasurer shall make good such deficiency out of such sums as may be appropriated for the purpose by vote of the Legislative Assembly.

Sums payable to Municipal Hospital Districts in respect of Special Districts

9. Where any part of a Special District is included in a Municipal Hospital District constituted pursuant to the provisions of *The Municipal Hospitals Act,* 1929, the amount payable to the Municipal Hospital District in the year 1939 and every year thereafter in respect of the part of the Special District included in the Hospital District shall be paid to the Municipal Hospital District by the Provincial Treasurer out of such sums as may be appropriated for the purpose by vote of the Legislative Assembly.

Modification of provisions of The Tax Recovery Act, 1938, in respect of Special District

10.—(1) Notwithstanding the provisions of *The Tax Recovery Act,* 1938, or of any other Act, whenever any parcel of land in a Special District has been finally acquired under the provisions of *The Tax Recovery Act,* 1938, or of any other Act relating to the recovery of taxes, the Minister shall forthwith proceed to obtain title

to such parcel of land, and upon the Minister so obtaining title, every right of any person whatsoever to redeem such parcel of land shall cease and determine.

Prior right of leasing of land by certain persons on acquisition by Minister

(2) In case at the time when the Minister acquires the title to any parcel of land as aforesaid the parcel is in the occupation of a person who was immediately prior thereto the registered owner thereof, or a person who derived title thereto from the registered owner as a purchaser under an agreement for sale or as the personal representative of the owner, such person shall have the right to become the lessee thereof for such term at such rent and upon such terms and conditions as may be prescribed by the Minister; provided always that he shall exercise such right by executing the lease in the form prescribed by the Board or by delivering to the Board a written undertaking to execute such lease within thirty days after the day upon which the Board sends to such person a notice to the effect that the title to the parcel has been taken by the Minister, and setting out therein a copy of this subsection.

Non-application of Acts providing for consolidation of local taxes

11.—(1) On, from and after the 31st day of March, 1939, none of the provisions of *The Local Tax Arrears Consolidation Act,* 1935, shall apply to any arrears of taxes payable in respect of any parcel of land which is situate in a Special District, save and except arrears of taxes with respect to which a consolidation agreement which is subsisting as at the 31st March, 1939, has been entered into pursuant to the said Act, or *The Local Tax Arrears Consolidation Act,* 1934, or *The Local Tax Arrears Consolidation Act,* 1935.

Cancellation of consolidation agreements on default

(2) In case default is made at any time after the 31st day of March, 1939, in the making of any payment of any sum payable pursuant to any agreement for the consolidation of any arrears of taxes payable in respect of any parcel of land situate in a Special District subsisting as at the 31st day of March, 1939, the same shall be cancelled, and no subsequent agreement for the consolidation of any arrears of taxes payable in respect of that land shall be entered into.

Powers of Minister

12. The Minister is hereby empowered in respect of Special Areas generally or in respect of any specified special area or areas,—

(*a*) to direct that any of the public lands or interest therein within a Special Area shall be dealt with in such manner as may seem to him to be for the benefit of the residents of the Special Area, or to prohibit the dealing therein in any manner which seems to him to be detrimental to such residents;

(*b*) to lease public lands within a Special Area at such rentals as may seem fair and equitable;

(*c*) to set aside lands for community purposes, such as grazing reserves, hay reserves, water reserves and irrigation, and to make such provisions for the administration thereof as may be deemed advisable;

(*d*) to receive the money payable in respect of any lease, or any interest in public lands in a Special Area and to expend such moneys, or any part thereof as he may deem advisable for the following purposes or any one of them:

(i) the costs of administration;
(ii) the development of any natural resources;
(iii) the carrying out of improvements within any Special Area; and
(iv) the rehabilitation of settlers within any Special Area;

(*e*) to order and require any owner or occupant of lands to adopt such methods of farming or grazing, or farming and grazing as may be deemed necessary to prevent soil drifting or over-grazing, or any hazard which may dissipate or nullify any assistance rendered to residents within the Special Area;

(*f*) to exchange any public lands within a Special Area for any other lands situate within any Special Area;

(*g*) to promote approved farm cultural practices and efficient range management, also such community effort and enterprise as may contribute to greater economic security of residents of the Special Area;

(*h*) to classify all lands within the Special Area for the purpose of utilizing them for the purpose for which they are considered by him to be most adaptable;

(*i*) to promote measures for the development and conservation of any and all available natural resources within any Special Area for the purpose of giving greater stability of income to the remaining residents within the Special Area;

(*j*) to promote greater stability and diversity of sources of income for residents within any Special Areas to the end that they may become self-supporting;

(*k*) to acquire by purchase or otherwise any property whether real or personal which is requisite or incidental to the exercise of any powers conferred by this Act;

(*l*) to carry out and execute any scheme or plans for the rehabilitation or betterment of any Special Area and the inhabitants thereof;

(*m*) to do all such things as are requisite or incidental to the exercise of any power conferred by this Act.

Transfer to Minister of Lands in Special Area vested in a municipality

13. Notwithstanding the provisions of any other Act any lands within a Special Area, the title to which for the time being is registered in the name of any municipality in the proper Land Titles Office, are hereby transferred to, and the title thereto vested in the Minister on behalf of the Crown.

Entry and occupation of land by certain Provincial officials

14.—(1) Any surveyors, engineers, agents and workmen employed by the Province may enter upon and occupy any land in a Special Area for the purpose of making examinations and surveys for the purpose of carrying out any work or undertaking approved by the Lieutenant Governor in Council as a work or undertaking for the rehabilitation or betterment of the Special Area, to construct thereon dams, ditches, weirs, spillways, roads and such other buildings, structures or erections as may be necessary or incidental to the carrying out of any such work or undertaking or the maintenance thereof, and any land forming the site of any such work or undertaking or which is used, or occupied in connection therewith, shall be deemed

to be the property of the Crown so long as the same is required for the purpose of such work or undertaking.

Compensation

(2) In any case in which it is made to appear to the Minister that any right or property of any person has been detrimentally affected by reason of any act or thing done pursuant to this section, or by the use or occupation of any land used or occupied in the exercise of any power conferred by this section, the Minister may, after making such inquiries as he deems necessary, allow any such person such compensation as he may in his uncontrolled discretion think proper, and any compensation so allowed shall be paid out of any moneys appropriated by the Legislature for the administration of this Act.

Board the agent of the Minister for certain purposes

15.—(1) For the purpose of performing any duty or exercising any power in relation to any Special Area assigned to the Board by the Minister, the Board shall, subject to the direction of the Minister, be the agent of the Minister for that purpose and have the same powers and capacity to perform or discharge such duty or power as is conferred by the Act upon the Minister for that purpose.

Constitution of advisory committees

(2) The Minister may, by order, provide for the constitution in any Special Area of an advisory committee consisting of such persons elected in such manner and by such persons and in such localities as he may prescribe, who shall hold office for such term as he may prescribe, and the functions of such committee shall be to confer with and advise the Board as to matters affecting the Special Area for which it is constituted and shall meet when called by the Board; the members of such committee shall serve without remuneration but shall be entitled to reasonable travelling or subsistence expenses incurred in attending meetings called by the Board.

Disposition of public lands

16. No public lands situated in a Special Area shall be sold, leased, or otherwise disposed of without the consent of the Minister.

Disposition of revenue from public lands

17.—(1) All revenue derived from public lands within any Special Area shall be deposited in a special account to be called "Provincial Treasurer Special Areas Trust Account," and such revenue may be used in accordance with the provisions of paragraph (*d*) of section 12 of this Act.

(2) There shall be submitted to the Legislative Assembly within the first fifteen days of the first Sesssion in the next ensuing year and in each subsequent year thereafter a statement of the revenues received and expenditures made during the previous fiscal year.

(3) All revenue derived from Provincial Lands of a class designated School lands shall be payable to the General Revenue Fund of the Province.

Lands vested in Trustees of Irrigation Districts

18. Any lands in a Special Area vested in the Trustees of an Irrigation District may, with the approval of the Irrigation Council, be designated by the Minister as public lands, and the lands so designated shall be dealt with as public lands within the meaning of this Act.

Transfer of lands to Minister

19. The Minister may accept a transfer on behalf of His Majesty of any lands in a Special Area and any lands so acquired shall be public lands within the meaning of this Act.

Cessation of assessment and taxation of certain public lands

20. Notwithstanding the provisions of any other Act public lands in a municipality situated in a Special Area shall be removed from the assessment rolls, and shall cease to be liable to assessment and taxation, and any taxes owing in respect to such land, shall be cancelled.

Validation of certain assessments and taxes

21. All assessments and taxes levied against lands that have been finally acquired by any municipality situate in a Special Area under the provisions of *The Tax Recovery Act,* 1938, or any other Act of the Province relating to the recovery of taxes but to which transfer of title has not been taken, are hereby validated and confirmed.

Services of officers of Departments of the Government, Boards and Commissioners

22. For the purpose of doing any act or thing authorized by this Act, the Minister and the Board may, with the consent of the Minister in charge of any department of the Government, have the benefit of the services of any officer or other employee of such department, and of the services of any member, officer or employee of any Board or Commission established under the Provincial Statutes.

Effecting of compromises

23. In any case in which provision has been made pursuant to this Act for the compromise of any arrears of taxes, rentals, dues, fees, or other charges and a sum has been thereby fixed as the sum to be paid in satisfaction of the arrears, the authority entitled to receive the same shall accept the sum so fixed, and the arrears in excess of the sum so fixed shall be cancelled.

Exchanges of privately owned land for public land

24. When an exchange of privately owned land for public land is effected by the Minister and there are no encumbrances other than arrears of taxes or municipal or Provincial liens on the privately owned land, such encumbrances or any part thereof may be transferred to the public land so exchanged; and when any transfer of arrears of taxes is so made the same shall be added to, and become part of the taxes payable for the current year in respect of the land last mentioned.

Records of lands subject to this Act

25.—(1) The Department shall keep a record of all lands subject to the provisions of this Act and the said Department shall be responsible for the issuing and recording of all leases, agreements, and contracts of any dispositions made and for the proper enforcement of the terms thereof.

Notification as to title on acquisition of certain land

(2) Upon any person becoming entitled to receive a title in fee simple to any lands to which this Act applies, a notification in Form A shall be issued in accordance with the provisions of section 86 of *The Provincial Lands Act,* which notice shall be signed by the Minister or by the Deputy Minister or the person for the time being acting as Deputy Minister and shall be countersigned by the Director of Lands or any person acting as Director in his absence and shall be forwarded to the Registrar of Land Titles for the district in which the land is situate.

Control and regulation of community grazing areas

26. For the purpose of controlling and regulating any part of an area set aside for a community grazing area, the Minister may, with the approval of the Lieutenant Governor in Council, make such provision for the administration thereof as may be deemed proper, and may prescribe as to the persons who may have animals thereon,

the number, kind, and description of animals which any person may place thereon, the fees payable in respect of any animals permitted to graze thereon, the times at which and the manner in which round-ups shall be made, and the impounding and dealing with stray animals thereon and in case any provision so made conflicts with any provision of *The Domestic Animals (Unorganized Territory) Act,* or *The Domestic Animals (Municipalities) Act,* the provisions so made shall prevail.

Sums payable for grazing leases a lien on animals grazed thereon

27.—(1) Notwithstanding the provisions of any other Act, all sums payable under any grazing lease or under any permit in respect of any animals run or grazed upon any lease or any community pasture or any public lands shall constitute a first lien in favour of the Crown upon each animal so run or grazed; and the Minister may enforce the lien by the seizure and sale in such manner and at such time as he may deem proper of such of the animals subject to the lien as may be required to realize a sufficient sum to satisfy the full amount owing by the lessee or permittee.

Distress for arrears in respect of dues for grazing

(2) In addition to any of the remedies which the Minister may have, in case default is made in the due payment of any sum owing by a lessee or permittee under any grazing lease or permit with respect to animals run or grazed upon any lease or upon any community pasture, the Minister may recover the same by distress upon any goods and chattels of the lessee or permittee wheresoever the same may be found within the Province, in the same manner and subject to the same conditions, exemptions and restrictions as if the amount so owing were taxes payable under the provisions of *The Municipal District Act,* and all the provisions of that Act relating to distress shall, *mutatis mutandis,* apply to a distress under this section.

Certain services at Land Titles offices without fee

28. Notwithstanding the provisions of any other Act, no fees shall be payable by a municipality which is in a Special Area to any Registrar of Land Titles for any service to the municipality in connection with any letter of search or any search of the General Register, the registration of any transfer of title, the issuance of any certificate of title, or the furnishing of any abstract of title.

Advertisements in *The Alberta Gazette* without fee

29. Notwithstanding the provisions of any other Act, no fees shall be payable by a municipality situated in a Special Area in connection with advertising in *The Alberta Gazette* under the provisions of *The Tax Recovery Act.*

Application of *The Domestic Animals (Unorganized Territory) Act*

30.—(1) Save and except only as is expressly otherwise provided in this Act, the provisions of *The Domestic Animals (Unorganized Territory) Act* shall apply to every special area to the extent that the same are not in conflict with any of the provisions of any regulations made pursuant to section 4 of this Act.

Powers under *The Domestic Animals (Unorganized Territory) Act, The Agricultural Pests Act* and *The Noxious Weeds Act, 1932* exercisable by Minister and others

(2) In relation to any Special Area all the powers, duties, rights and capacities which are by *The Domestic Animals (Unorganized Territory) Act, The Agricultural Pests Act* and *The Noxious Weeds Act,* 1932, conferred or imposed upon the Minister of Agriculture shall be vested in, conferred upon and imposed upon the Minister of Lands and Mines and all the powers, duties, rights and capacities which are by that Act vested in or conferred or imposed upon the

Deputy Minister of Agriculture shall be vested in, conferred upon and imposed upon the Deputy Minister of Lands and Mines, and all the powers, duties, rights and capacities which are by that Act vested in or conferred or imposed upon the Department of Agriculture shall be vested in, conferred upon and imposed upon the Department of Lands and Mines, as if the Minister of Lands and Mines had been named therein wherever the Minister of Agriculture is named therein, and as if the Deputy Minister of Lands and Mines had been named therein wherever the Deputy Minister of Agriculture is named therein, and as if the Department of Lands and Mines had been named therein wherever the Department of Agriculture is named therein.

Annual report

31. The Minister shall cause to be prepared a report as to the administration of this Act for each year and the same shall be laid on the table of the Legislative Assembly within fifteen days after the commencement of the first Session in the next ensuing year.

Determination of certain leases

32. In any case in which the Board appointed under *The Special Municipal Areas Act* has entered into any arrangement otherwise than by means of a formal lease whereby any right was given to any person to use any land for the period of one year or for an indefinite period or both, every such arrangement shall be subject to the condition that the same shall be determined immediately upon the Minister sending to that person by registered mail at his last known post office address a notice in writing terminating the arrangement, and upon the thirtieth day after the date of the mailing of any such notice or at such later date as may be specified in the notice for that purpose, the arrangement shall forthwith cease and determine and the Minister shall be entitled to the vacant possession of the land to which the arrangement relates.

Contraventions of Act and regulations, offences: penalty:

33. Every person who contravenes any order or regulation made pursuant to this Act shall be guilty of an offence and shall be liable on summary conviction therefor to a fine of not more than one hundred dollars and costs and in default of payment to imprisonment for not more than two months.

Regulations of the Lieutenant Governor in Council

34. For the purpose of carrying out the provisions of this Act according to their true intent, and of supplying any deficiency therein, the Lieutenant Governor in Council may make regulations not inconsistent with the intent and spirit of this Act, which shall have the same force and effect as if incorporated therein.

Extension of leases, etc.

35. All leases, licenses, permits and agreements of any nature whatsoever issued or made pursuant to the provisions of this Act may be executed on behalf of the Crown by the Minister, or by any other person authorized for the purpose by the Minister in writing.

Prevalence of Act

36.—(1) In case any conflict arises between any of the provisions of this Act and any of the provisions of any other Act, the provisions of this Act shall prevail.

(2) In case any conflict arises between the provisions of any regulation made pursuant to section 4 of this Act and any of the pro-

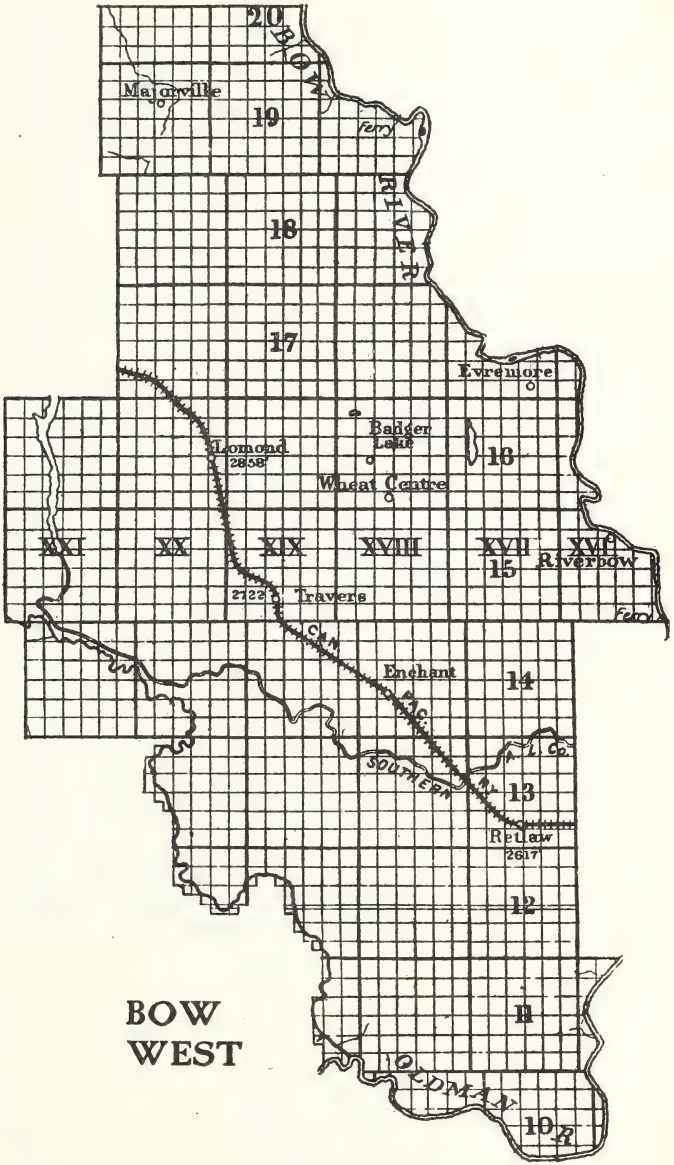
visions of *The Domestic Animals* (*Unorganized Territories*) *Act*, the provisions of such regulations shall prevail.

Repeal

37. *The Special Areas Act*, 1938, being chapter 92 of the Statutes of Alberta, 1938, is hereby repealed, but all proceedings instituted under that Act shall be continued as if the same had been instituted under this Act.

Coming into force of Act

38. This Act shall come into force on the day upon which it is assented to.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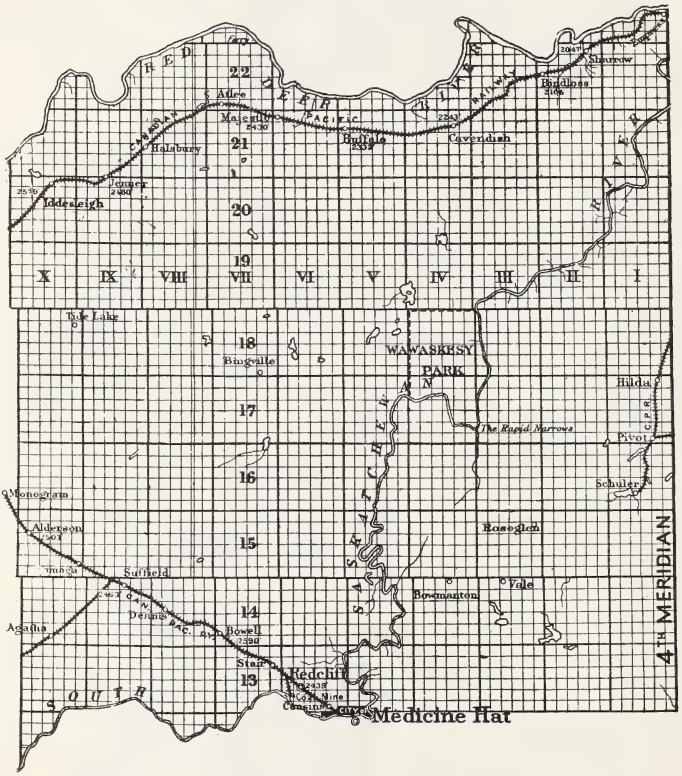
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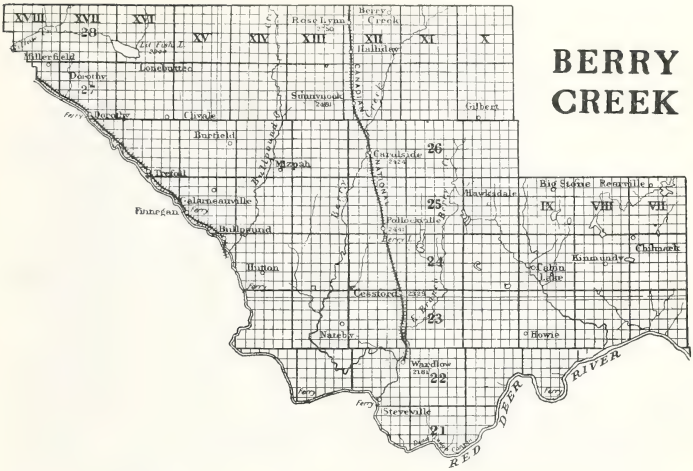
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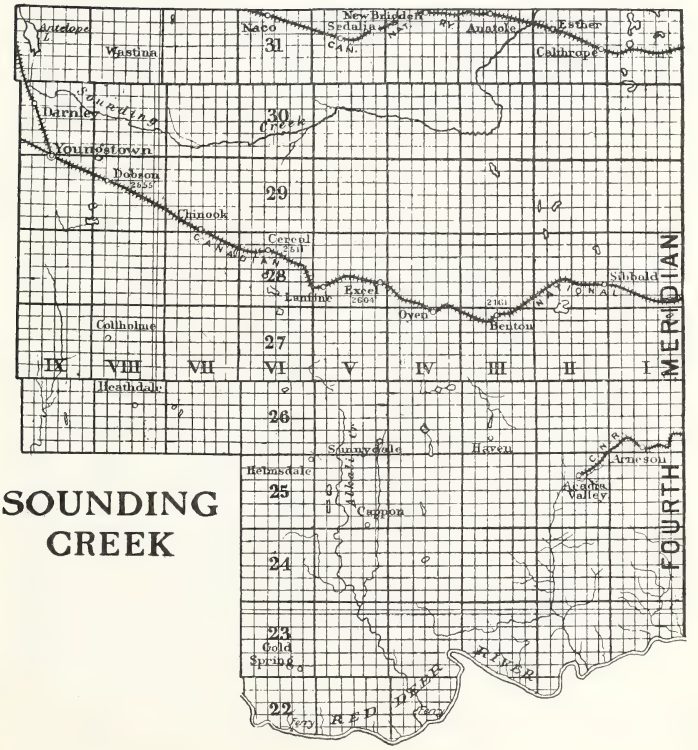
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Cold Spring
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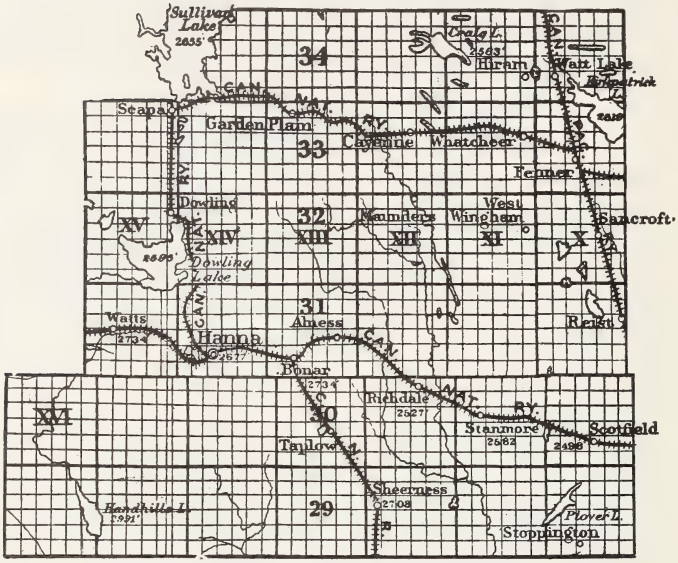
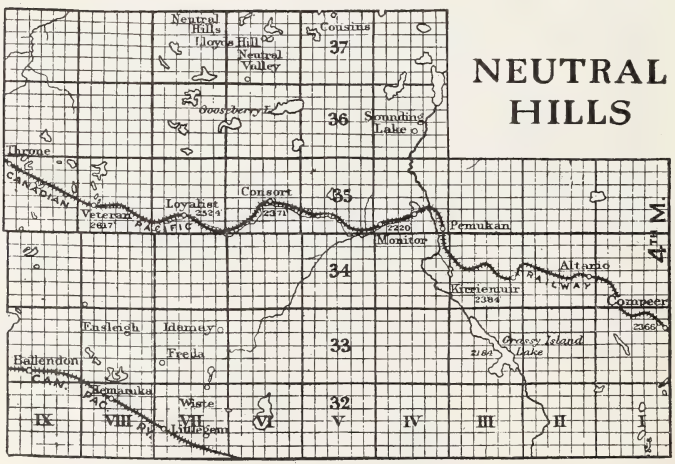




NEUTRAL HILLS

Provincial Lands Administration

REPORT OF THE DIRECTOR OF LANDS, J. W. STAFFORD

On the 1st of May, 1938, the former School Lands Division of this Department, which was charged with the administration of the school lands, was amalgamated with this branch and this necessitated certain internal reorganization in order to carry on successfully the administration of the two classes of lands.

The transfer of the school lands records to this branch more than occupied the space available, resulting in the work being carried on under rather crowded conditions.

Under the provisions of The Special Areas Act, the lands, which were formerly included in the several special areas in the south-eastern portoin of this Province, were brought under the administration of the Department of Lands and Mines, and a Special Areas Board was set up for the purpose of administering these lands, with the result that a large number of files was transferred from this Division to the Special Areas Board, these files dealing chiefly with grazing matters.

Under the provisions of "An Act to Amend and Consolidate the Special Areas Act of 1938," the lands, included within the boundaries of the Municipal District of Acadia, No. 241, were withdrawn from the provisions of The Special Areas Act and the administration of these lands was again transferred to this Division, necessitating the re-transfer to this Division of certain files and documents, which had previously been transferred to the Special Areas Board.

Regulations providing for the issue of cultivation permits and also for the issue of six-year cultivation leases on provincial lands were rescinded and on the 5th of November new regulations were established providing for the issue of ten-year cultivation leases.

The right to obtain homestead entry, second homestead and soldier grant entry was discontinued on the 24th of March and the right to make application for the cancellation of an existing entry was also withdrawn.

At that time there were certain applications on hand in connection with which cancellation proceedings had been instituted with the result that these applications, numbering 304 in all, were cancelled and the application fee of $2.00 in each case was refunded to the applicant.

Land agencies were maintained at Calgary, Lethbridge, and Peace River with Sub-Agencies at Medicine Hat, Rocky Mountain House, Athabaska, Lac La Biche, Bonnyville, Hines Creek and Grande Prairie. The Sub-Agency at St. Paul was discontinued.

On the 1st of April, 1938 there were outstanding 1,636 requests for inspections in the field. Inspections called for during the year numbered 2,173 and reports received numbered 2,370, leaving 1,439 required inspections outstanding.

The total revenue received for the fiscal year in connection with the administration of provincial lands amounted to $159,415.63 as compared with $181,412.38 during the previous year, showing a reduction of $21,996.75.

Details pertaining to this revenue will be found in the Accounting Division section of this report.

In addition to the general administration of provincial lands, this Division maintains a complete filing system and a central registry, through which all letters

directed to the Department were received and from which all outgoing letters were dispatched.

During the past year a total of 135,454 letters were received and 175,627 were despatched. This shows an increase over last year of 28,314 letters received and 2,255 letters despatched.

In connection with the Filing Division 1,931 new files were made, bringing the total number of files in use up to 95,673.

The number of stencils cut during the present year is 613 as compared with 376 last year and 190,745 pages were mimeographed as compared with 145,307 last year. Translations for this and other Departments numbered 336.

With reference to crop shares to be paid in accordance with the various cultivation leases issued, these crop shares were reduced to the same basis as in the previous year and collections compared favourably with former years.

Homesteads and other entries granted during the year were as follows:

Homesteads	1,277
Second homesteads	73
Soldier grants	3
Total	1,353

This total included 513 entries accepted from women.

The following statement shows additional transactions completed during the year:

Applications for cancellation	1,124	Cultivation and grazing leases transferred to Special Areas	86
Entres cancelled	2,345	Provincial lands sales	83
Applications for patent received	1,968	Townsite leases issued	2
Notifications for title issued	2,874	Surface leases issued	3
Grazing permits issued	952	Licences of occupation issued	15
Hay permits issued	1,140	Miscellaneous leases issued	17
Accrued area leases issued	64	Fur farming leases issued	1
Accrued area leases cancelled	33	Assignments registered	77
Cultivation and grazing leases issued	30		
Cultivation and grazing leases cancelled	20		

In last year's report, the section dealing with the Grazing Division presented a rather lengthy review of the activities of this Division in connection with the consolidation of rentals and tax arrears on lands held under long term grazing leases.

Following these consolidations a considerable number of lessees failed to make payment of the required rentals and instalments due in connection with their leases, with the result that a large number of the leases were cancelled.

It was subsequently decided through those lessees, who had lost control of their leases through cancellation of same being carried out, might have their leases reinstated by making payment of the past due rentals together with any instalment on consolidation which was past due. It is pleasing to be able to report that quite a number of these lessees took advantage of this liberal offer and had their leases reinstated.

The following statement gives particulars concerning transactions in connection with long term leases during the present fiscal year:

	Number	Area
Leases in existence at the 1st of April, 1938	2,553	3,068,811.87
Leases issued	13	6,554.90
Leases reinstated	80	130,036.67
Leases cancelled	837	795,159.76
Leases and portions of leases transferred to Special Areas Board	444	654,894.83
Area added to existing leases	.....	69,871.30
Leases re-transferred from the Special Areas Board	31	24,475.22
Area wthdrawn from existing leases	.....	37,415.03

On the 31st of March, 1939 there were in existence 1,396 long term leases comprising an area of 1,812,280.34 acres, summarized as follows:

	Number	Area
Dominion leases	690	958,277.64
Provincial leases	706	854,002.70

School Lands Administration

The report for the fiscal year ending 31st of March, 1939, in connection with the administration of School Lands, is submitted herewith.

On the 1st of May, 1938, the former School Lands Division of this Department was amalgamated with the Provincial Lands Division, and the administration of the school lands was placed under the control of the Director of Lands.

This amalgamation naturally required certain internal changes in order to carry on the work successfully but was accomplished without any great difficulty.

As school lands are administered by the Province in trust, in order to create a fund for the purpose of education it is essntial that separate records be maintained in connection with the administration of these lands, so that at any future time a proper accounting can be made of the administration of these lands and in order that the records might be readily separated at any time, should it be decided in the future to administer the school lands as a separate unit.

The Board appointed pursuant to the provisions of Section 44 of The Provincial Lands Act, to deal with applications for a compromise or adjustment in connection with school lands sales continued to function throughout the year.

Many applications were made to the Board for an adjustment or compromise with the result that 1,270 cases were dealt with as compared with 694 cases last year. In connection with these 1,270 cases, the Board recommended reductions in the sum of $1,437,602.37 on account of principal and $1,090,421.03 on account of interest, a grand total of $2,528,023.40. All of the Board's recommendations were accepted by the Government and the reductions recommended in each case were made effective by various orders in council passed during the year.

The total net revenue collected for the fiscal year amounted to $444,519.37 as compared with $282,469.70 for the previous year, being an increase of $162,049.68.

Of the total revenue collected the sum of $86,322.26 was paid on account of principal moneys in connection with land sales and was transferred to the credit of the School Endowment Fund. The balance of the moneys, namely $358,197.11, comprises payments made on account of interest, rentals, royalties, etc., and other items of a more or less similar nature. The increase in revenue is chiefly attributable to more favourable farming conditions throughout the Province and the fact that better prices were obtained for marketable produce than in previous years.

No general auction sales of school lands were held during the fiscal year but 186 former school land sales were reinstated under the provisions of section 44, sub-section 2 of The Provincial Lands Act and reductions granted in connection therewith by the Board previously referred to.

By Order in council, bearing date 5th of November, 1938, the regulations pertaining to the issue of cultivation permits and the issue of six-year cultivation leases on school lands were rescinded and new regulations were established by Order in council, providing for the issue of leases to cultivate school lands, which had not been previously brought under cultivation. Such leases are issued for a term of ten years renewable for a further term of ten years, but these leases are not issued until an inspection has been made of the land and it has been satisfactorily established that at least one-third of the area applied for is suitable for cultivation. The maximum area which may be obtained under this class of lease is two quarter sections or 320 acres.

During the past fiscal year 41 cultivation leases were issued comprising an area of 8,022.22 acres. Of these leases 15 were issued under the provisions of the new regulations.

During the past year 149 cultivation leases comprising an area of 26,630.13 acres were cancelled. Crop share collections for the fiscal year compare favourably with those of former years.

A total of 398 permits was issued authorizing the cutting of 3,721 tons of hay under authority of which 2,750 tons of hay were cut. No seizures of hay were made during this year.

In connection with timber operations, 7 timber berths were disposed of by sale and from these berths and other berths in operation the following material was manufactured:

5,009,905	F.B.M. of lumber
2,702	railway ties
104,000	lath

In addition to the above, 478 timber permits were issued authorizing the cutting of timber on school lands and under authority of these permits the following material was cut:

1,973,094	F.B.M. of lumber
9,561	lineal feet of logs
10,804	fence posts
536	roof poles
902	fence rails
3,400	fence droppers
3,671	cordwood
16,000	shingles
59,979	lineal feet of mine props
4,711	railway ties
623,075	lath

During the year a total of 23 timber seizures was made covering the following material:

722,649	F.B.M. of lumber.
106	cords of cordwood
2,550	fence posts
579	telephone poles
801,875	lath
1,634	logs

In conjunction with the carrying on of usual routine business, the following additional transactions were completed:

Assignments registered	87
Cultivation and grazing leases issued	41
Cultivation and grazing leases cancelled	149
Grazing permits issued	1,881
Hay permits issued	398
Timber permits issued	478
Timber seizures	23
Hay seizures	Nil

Mining Lands Administration

REPORT OF THE SUPERINTENDENT OF MINING LANDS, J. W. HAMILTON

The interest in petroleum and natural gas, so evident in the past fiscal year, still continued during the period under review. Although the major mining industry of the Province remains with coal it will be noted that the revenue derived by this Division from petroleum and natural gas is considerably in excess of that procured from coal operations. The reduction in the output of coal is due mainly to the exceedingly mild winter of 1938-39.

The quantities of non-metallic minerals produced in the Province during the calendar year, 1938 were coal 5,230,025 tons, petroleum 6,742,039 barrels, natural gas 25,622,900 thousands of cubic feet, salt 4,045 tons and sodium sulphate 64 tons. The tonnage of clays produced is not known, but the amounts of other structural minerals were cement, 304,373 barrels, lime, 12,053 tons, sand and gravel, 803,907 tons and stone, 15,278 tons.

The total value of minerals produced was approximately $25,059,521 of which coal was valued at $13,702,983; petroleum $8,638,926; natural gas *$1,024,916; salt, $46,035; sodium sulphate, $448; and the structural materials—clay products, $357,517; cement, $611,790; lime, $107,012; sand and gravel, $524,240; stone, $34,916; and miscellaneous, $10,738.

Mineral rights, solid, liquid and gaseous, the property of the Crown, are disposed of by lease, reservation, permit or grant for limited periods of time and not by sale. The Mining Lands Division is charged with the administration of regulations governing these rights on both provincial and school lands. The sources of revenue are fees, rentals, bonuses and royalty and from which there was collected during the fiscal year the sum of $1,210,765.48, an increase of $317,176.91 over the previous year.

An increase of $92,986.27 is shown on petroleum and natural gas rentals which is mainly due to there being firstly, a larger acreage now under petroleum and natural gas lease and secondly, to the rental on the large number of leases issued during the previous year being at the rate of fifty cents an acre for that year and now subject to $1.00 an acre for the second and each succeeding year. Royalties collected on petroleum and natural gas for the current year are in excess of $249,241.66 over the previous year.

Considerable activity has been shown under the regulations for the establishing of reservations for geological examination of large areas and during the year 334,600 acres were placed under reservation for that purpose. By this procedure a person or company, after conducting an examination of the area and furnishing the Department with geological reports, may then acquire under petroleum and natural gas lease such areas as appear most promising for the recovery of oil and natural gas.

During the year 1,292 applications for mineral rights were made at the offices of the Mining Recorders located at Calgary, Edmonton, Lethbridge and Peace River which necessitated the preparation of a similar number of files in the Division. Numerous requests were made at the office and by correspondence regarding the availability of lands for petroleum and natural gas leases. Some of the inquiries on mining rights required considerable investigation and prepara-

*Based on a well-head valuation of .04c per Mcf.

tion. A total of 30,726 letters was despatched by the Division during the year under review.

The following tabulations show the numbers and acreage of the various leases issued from October 1st, 1930, the date the natural resources were transferred to the Province of Alberta, to March 31st, 1939:

Type of Lease	Active at date of transfer	Issued	Divided	Cancelled	Renewed	Active at March 31st, 1939
Petroleum and natural gas, provincial lands	16,899	6,622	173	18,546	140	5,008
Petroleum and natural gas, school lands	1,964	823	8	2,304	1	490
Petroleum and natural gas, crown reserve	5	20	.....	25	.....	.....
Coal, provincial lands	620	334	3	489	102	366
Coal, school lands	60	25	.....	45	7	33
Quarrying	45	37	.....	33	.....	49
Quartz mining	4	.....	.....	.....	.....	4
Salt	1	1	.....	1	.....	1
Bituminous sands	4	1	.....	3	.....	2
Miscellaneous	1	3	.....	1	.....	3
Dredging	32	6	.....	36	.....	2
TOTALS	19,635	7,872	184	21,483	250	5,958

ACREAGE CONTAINED IN ABOVE LEASES

Type of Lease	Active at date of transfer	Issued	Cancelled	Renewed	Active at March 31st, 1939
Petroleum and natural gas, provincial lands	2,263,076	1,294 853	2,484,864	19,714	1,053,351
Petroleum and natural gas, school lands	191,726	116,615	230,684	420	77,237
Petroleum and natural gas, crown reserve	6,160	22,561	28,721	.....	.....
Coal, provincial lands	236,984	111,951	169,904	75,105	103,926
Coal, school lands	9,570	2,393	5,773	1,464	4,726
Quarrying	1,675	578	752	.....	1,501
Quartz mining	182	.....	.....	.....	182
Salt	200	6,721	200	.....	6,721
Bituminous sands	3,952	1,808	3,643	.....	2,117
Miscellaneous	3,560	323	10	.....	3,873
TOTALS	2,717,085	1,557,803	2,924,551	96,703	1,253,634
Dredging (in miles)	145	22	157	.....	10

STATEMENT OF BUSINESS TRANSACTED, 1938-39

PETROLEUM AND NATURAL GAS

	Number	Acres
Leases issued on provincial lands	902	302,882.05
Leases cancelled and relinquished on provincial lands	1,831	234,332.42
Leases issued on school lands	124	29,189
Leases cancelled and relinquished on school lands	244	23,484.90
Permits to prospect cancelled and relinquished	8	139,417
Reservations issued	20	334,600
Reservations cancelled and relinquished	7	196,718

Fees, rentals and bonuses collected	$413,185.41
Royalties collected	522,765.76
TOTAL	$935,951.17

COAL

	Number	Acres
Leases issued on provincial lands	32	4,893.58
Leases cancelled and relinquished on provincial lands	32	7,797.48
Leases issued on school lands	2	93
Leases cancelled and relinquished on school lands	3	594.40
Domestic permits issued	20	.....

Fees and rentals collected	$111,431.25
Royalties collected	152,341.01
TOTAL	$263,772.26

QUARRYING

	Number	Acres
Leases issued	5	56
Leases cancelled and relinquished	2	55.91
Sand, stone and gravel permits issued	21	.....
Fees and rentals collected	$1,511.94	
Royalties collected	1,763.27	
TOTAL	$3,275.21	

DREDGING

	Number	Area in Miles
Leases issued	2	9.50
Leases cancelled and relinquished	4	20
Fees and rentals collected	$485.00	
Royalties collected	.....	
TOTAL	$485.00	

MISCELLANEOUS

	Number	Acres
Bituminous sands leases issued	1	1,807.70
Leases to extract glauber salts cancelled	1	10
Permits to collect bitumen issued	1	.....
Quartz mining claims granted	Nil	.....
Quartz mining certificates of work issued	2	.....
Powers of Attorney (quartz) registered	2	.....
Placer claims granted	3	.....
Powers of Attorney (placer) registered	Nil	.....
Bar-diggings permits issued	Nil	.....
Fees, rentals and royalties collected	$7,281.84	

ASSIGNMENTS REGISTERED, 1938-39

Nature	Number
Petroleum and natural gas, provincial lands	695
Petroleum and natural gas, school lands	103
Coal, provincial lands	6
Coal, school lands	2
Quarrying	6
Dredging	2
TOTAL	814

Petroleum and Natural Gas

Development of Leases.—Approved expenditures incurred in actual development of petroleum and natural gas rights acquired under lease or reservation may, under the regulations, be accepted in satisfaction of rentals which should otherwise be paid in cash, and during this fiscal period, rentals due the Crown amounting to $418,445.72 were satisfied from such expenditures and so reduced the revenue of the Division to that extent. The total rental revenue received in cash was $413,185.41, which, added to the expenditures accepted in lieu of rental, makes a total of $831,631.13 chargeable to fees, rentals and bonuses.

Disposal by Public Tender.—The provision of the regulations for the disposal at auction of petroleum and natural gas rights in areas comprised in cancelled leases has resulted in payment to the Crown of bonuses amounting to $3,434.24 during the last fiscal year. Of this amount, $3,298.19 was bid and paid on provincial lands' rights, and $136.05 on school lands' rights.

Number and Area of Leases.—During the year 1,026 petroleum and natural gas leases were issued, comprising an area of 332,071 acres, of which 902, comprising 302,882 acres, represented rights on provincial lands and 124, comprising 29,189 acres, rights on school lands.

The Province has issued since October 1st, 1930 a total of 7,465 leases, comprising 1,434,029 acres, and the Department of the Interior transferred to the Province 18,868 leases comprising 2,460,962.48 acres.

Of this total 5,498 leases are now active comprising an area of 1,130,588 acres of which leases rights on provincial lands total 5,008, and those on school lands, 490, containing respectively 1,053,351 and 77,237 acres.

Prospecting Permits.—The regulations covering the issue of permits to prospect for petroleum and natural gas rights, the property of the Crown, which were established by Order in Council, No. 671/31, were rescinded on the 7th of September, 1937, by Order in Council, No. 1027/37. The balance of these permits which were 8 in number and which covered an area of 139,417 acres, was cancelled.

Petroleum and Natural Gas Reservations.—Regulations covering the reservation for geological examination of petroleum and natural gas rights, the property of the Crown, were established by Order in Council, No. 1026/37, dated the 7th day of September, 1937. During the year 20 reservations were established, comprising 334,600 acres, and 7 cancelled on an area of 196,718 acres. There are now 314,375 acres affective under these regulations, contained in 20 reservations.

Coal

Lands patented, sold or disposed of by the Department of the Interior, prior to October 31st, 1887, conveyed the surface and minerals excepting gold and silver. As early as the year 1883 coal rights were sold outright at prices ranging from seven to ten dollars an acre on coal other than anthracite and for twenty dollars an acre on anthracite. It was not until February 6th, 1901, that regulations were introduced reserving a royalty to the Crown which became effective on April 6th, 1901. From April 6th, 1901 to March 4th, 1907, the practice of selling continued at the above prices but the sales were subject to royalty which, on May 31st, 1901, was established at the rate of ten cents a ton. The rate of royalty was later reduced to seven cents a ton on merchantable coal mined following January 1st, 1915. Since March 4th, 1907, coal rights have been disposed of by lease at a yearly rental of one dollar an acre and a royalty of five cents a ton.

Leases are now granted only for the extension of existing operations or for small mines where the local market cannot be economically supplied from existing mines in the vicinity. In this fiscal year, 43 applications were considered and 34 leases issued comprising 4,986.58 acres.

The following quantity of coal, subject to Crown royalty, mined during the year is slightly less than the previous year when 3,227,397 tons were mined:

	Tons
Provincial lands' leases	2,169,694
School lands' leases	182,632
Coal and mineral sales	470,146
	2,822,472

Crown royalties collected on coal since April 1st, 1907, are as follows:

Fiscal Year	Royalty Paid	Fiscal Year	Royalty Paid
1907-1908	$ 7,621.67	1925-1926	$ 188,277.94
1908-1909	5,322.39	1926-1927	218,150.10
1909-1910	153,559.98	1927-1928	231,757.96
1910-1911	218,932.88	1928-1929	254,616.27
1911-1912	104,894.55	1929-1930	248,083.71
1912-1913	142,997.79	1930-1931	105,126.51
1913-1914	147,198.75	1931-1932	145,170.33
1914-1915	104,489.77	1932-1933	143,800.01
1915-1916	67,190.17	1933-1934	193,527.82
1916-1917	149,447.82	1934-1935	176,122.43
1917-1918	144,634.75	1935-1936	186,691.23
1918-1919	175,687.66	1936-1937	193,810.33
1919-1920	181,641.80	1937-1938	173,386.26
1920-1921	190,545.80	1938-1939	152,341.01
1921-1922	185,436.88		
1922-1923	171,723.83	Total	$5,121,557.03
1923-1924	210,389.53		
1924-1925	148,979.10		

Coal for Domestic Use.—Permits to mine coal on provincial lands for domestic use are issued on payment of a fee of one dollar and royalty at the rate of ten cents a ton. A location must be staked by placing a post at each corner and the area cannot exceed one acre. During the year 20 permits were issued authorizing an extraction of 465 tons by strip-mining methods. All permits expire on the 31st of March following the date of issue but are subject to renewal from year to year providing the permittee complies with the requirements of the regulations and submits an application for renewal prior to the expiry date.

Quarrying

Quarrying leases on Crown lands are issued under the regulations for limestone, granite, slate, marble, marl, gravel, sand, clay, volcanic ash or any building stone at a yearly rental of $1.00 an acre and a royalty of five cents a cubic yard. The royalty charge does not apply to leases issued to railway companies for the maintenance of roadbeds or to leases issued to cities, towns or municipalities requiring material for construction or maintenance of municipal works or improvements. In the calendar year of 1938 approximately 175,000 cubic yards of sand, gravel, limestone and shale were extracted from Crown lands.

At the close of the fiscal year 49 leases were active covering an area of 1,501 acres.

Sand, Stone and Gravel Permits.—Permits of this nature are issued on the beds of rivers and lakes at a fee of $2.50 and a royalty of five cents a cubic yard. A permit does not give an exclusive right to remove sand, stone or gravel from the portion of the river or bed of the lake it covers. During the fiscal year 21 permits were issued authorizing the extraction of 5,818 cubic yards but some of these are now cancelled as permits expire on the 30th day of November following the date of issue.

Dredging

The four dredging leases referred to in the previous report were cancelled and two new leases were issued on the McLeod river covering nine and one-half miles. No dredging operations, however, were conducted in the Province during the year.

Quartz

Two powers of attorney were filed by prospectors who intended undertaking prospecting trips but no claims were recorded during the year and only two certificates of work were issued. In order to procure a certificate of work on an existing claim the holder must submit evidence that he has expended $150.00 in actual development work or make payment of that amount to the Mining Recorder. One claim for the recovery of bentonite was in effect and royalty of $54.00, being at the rate of 2½% of the value, was collected.

If the regulations have been fully complied with for five years, the holder of a claim may apply for a lease for a period of twenty-one years. At present four leases of this nature covering 181.8 acres, which were issued by the Department of the Interior, are active.

Placer

A grant for placer mining on the bank of the Peace River which had been effective since 1934 was again renewed and a new grant and a renewal were issued covering claims on the bank of the Athabaska River. Nine ounces of gold were reported extracted during the year.

Bituminous Sands

One lease was issued in township 95, ranges 10 and 11, west of the 4th meridian, covering an area of 1,807.70 acres. The lessee is required to commence building a plant capable of extracting the bitumen by May 1st, 1939 and to have the plant completed and ready for commercial production on or before October 31st, 1939. A lease of 308.71 acres, also in the McMurray district is active from the previous year. Two companies are experimenting on lands held under special development agreements and one of the companies reported extraction during the year 1938 of 1,282 barrels of oil and 1,627 barrels of bitumen.

Sodium Chloride (Common Salt)

A salt lease was issued in 1937 covering 6,720.82 acres in townships 88 and 89, ranges 8 and 9, west of the 4th meridian. Considerable experimental work was conducted and by January 1938 a plant was erected and equipped for production. Two salt wells and a test well had been drilled and during this year a further salt well was completed at a depth of 952 feet. Production of 5,420 tons was reported which was subject to Crown royalty of twenty cents a ton.

Miscellaneous Leases

Two leases are in force for the removal of sodium sulphate (glauber salts) occurring in a comparatively pure condition in certain sloughs and shallow lakes. The leases were issued for a term of five years and contain an area of 32.56 acres. Production for the year amounted to 124 tons.

Special Permits

The annual permit for the collection of bitumen issuing from a well in the Peace River District was again renewed and during the year 1,161 gallons were secured.

Petroleum and Natural Gas

REPORT OF THE PETROLEUM AND NATURAL GAS DIVISION

The year saw rapid progress in development of the Turner Valley field and a considerably increased campaign of prospecting in other areas of the Province.

An important development was the setting up of the Petroleum and Natural Gas Conservation Board under an Act passed in April, 1938, subsequently repealed and re-enacted in November, 1938. Under this Act the Conservation Board was given very wide powers to control and regulate the drilling and production of wells in producing areas, with the object of effecting conservation of oil and gas resources in the Province. The production of oil wells in Turner Valley has since been prorated so as to provide each well its proper share according to its ownership in the common reservoir, as well as can be ascertained from reliable tests and production records, and a considerable reduction has been made in the waste of gas from the vapour phase wells in the field.

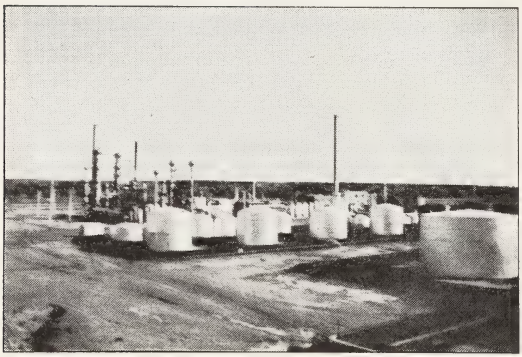
New regulations under The Oil and Gas Wells Act were passed giving the Board the responsibility of administration of drilling operations in other parts of the Province.

In November, 1938, a Royal Commission opened hearings in Calgary and many phases of production and marketing of oil were examined. The first phase of the hearing involved costs of piping oil from Turner Valley to Calgary. Since cost of transporting oil by pipe line is largely affected by the total quantity of oil to be handled before the final depletion of the field, much evidence as to oil reserves was introduced. The evidence, being in the nature of estimates and opinions, was not in close agreement but it did bring out general agreement that the probable total reserves are very considerable, and the Commission recommended a reduction in the handling charges.

Thirty-seven limestone wells were completed in Turner Valley during the year, of which one encountered water and marked a limit to the field, although the limit was not definitely fixed. One well (Home-Millarville No. 2) in the extreme north end of the field proved a very large producer, and yields a relatively small amount of gas per barrel of oil, being less than one Mcf. per barrel. This well and the more moderate success of Royalite No. 29 in the same general area, led to increased interest in the north end. Royalite No. 35 was started during the year, and other wells were being planned for that new and interesting section of the field.

A very considerable amount of prospect drilling was carried out in other parts of the Province in an endeavour to find another producing oil field.

A Schedule of Wells drilled in Alberta for oil and gas to 1938 was prepared and printed, publication being made late in 1938. A previous publication in mimeograph form was badly out of date, and the new book affords a fairly complete record of every well that has been drilled. The information, as far as it can be given, presents data for each individual well in connection with casings, occurrences of water, gas and oil and a summary of geological markers.



New British American Oil Company's refinery completed at Calgary in April, 1939

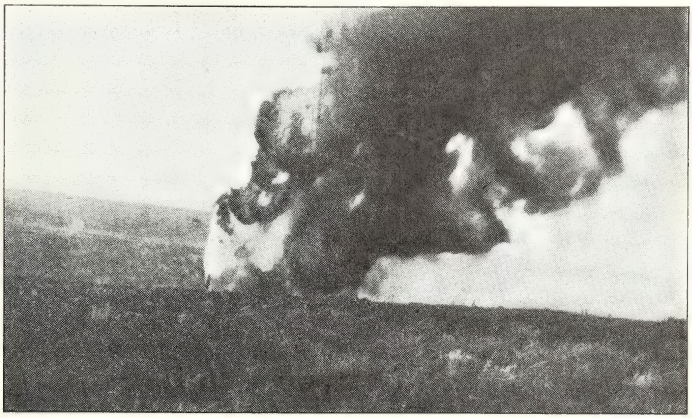
Storage tanks in Turner Valley

TURNER VALLEY COMPLETIONS,

arranged by date of completion during the fiscal year (west of the 5th meridian)

Well	*Location*	*Depth*	*Date Started*	*Date Completed*
Brown No. 4	*4 of 21, 18-2	6733′	Oct. 18, 1937	April 9, 1938
Pacific (West Turner) No. 1	2 of 32, 18-2	7274′	Aug. 10, 1937	April 17, 1938
National No. 2	14 of 9, 18-2	7705′	April 1, 1937	May 24, 1938
Reward-Spooner-Model No. 2 (Model-Spooner-Reward No. 2)	1 of 29, 18-2	7185′	Dec. 8, 1937	May 18, 1938
Sundance No. 1	9 of 17, 18-2	7410′	Dec. 31, 1937	May 18, 1938
Barsac No. 1	12 of 21, 18-2	6855′	Oct. 24, 1937	May 27, 1938
Royalite No. 30	11 of 32, 18-2	7690′	Jan. 13, 1938	May 31, 1938
United No. 5	1 of 20, 18-2	7303′	Dec. 12, 1937	June 6, 1938
Frontier No. 1	11 of 16, 18-2	6915′	Jan. 15, 1938	June 9, 1938
Vulcan-Brown No. 1	10 of 5, 19-2	7440′	April 24, 1937	June 11, 1938
Globe No. 1	7 of 29, 18-2	7400′	April 9, 1937	June 11, 1938
Coronation No. 1	15 of 17, 18-2	7572′	Jan. 4, 1938	June 27, 1938
Pacific (West Turner) No. 2	7 of 32, 18-2	7133′	Jan. 19, 1938	July 19, 1938
Mercury Royalties No. 1	8 of 5, 19-2	6666′	Dec. 3, 1936	July 25, 1938
Royalite No. 31	6 of 29, 18-2	8064′	Mar. 5, 1938	Aug. 7, 1938
Royalite No. 32	8 of 17, 18-2	7308′	Mar. 23, 1938	Aug. 12, 1938
Commoil No. 2	10 of 29, 18-2	7665′	April 10, 1938	Aug. 29, 1938
Royalite No. 33	2 of 5, 19-2	7676′	May 2, 1938	Sept. 4, 1938
York No. 1	2 of 20, 18-2	7463′	Jan. 21, 1938	Sept. 7, 1938
Sunset No. 2	7 of 20, 18-2	7527′	Feb. 27, 1938	Sept. 16, 1938
Brown No. 5	12 of 16, 18-2	7146′	May 8, 1938	Oct. 5, 1938
Consolidated No. 1	14 of 20, 18-2	7986′	Feb. 7, 1938	Oct. 10, 1938
Richwell No. 1	5 of 16, 18-2	7132′	May 6, 1937	Oct. 14, 1938
Davies No. 4	10 of 29, 18-2	7232′	May 13, 1938	Oct. 19, 1938
Royal Canadian No. 2	4 of 16, 18-2	7185′	Mar. 6, 1938	Oct. 23, 1938
Okalta No. 6	3 of 30, 18-2	10209′	July 12, 1937	Oct. 28, 1938
Anglo-Canadian No. 1	16 of 31, 18-2	8222′	June 7, 1938	Nov. 5, 1938
Royalite No. 34	7 of 5, 19-2	7500′	July 12, 1938	Nov. 23, 1938
Command No. 1	14 of 29, 18-2	7908′	May 8, 1937	Nov. 27, 1938
Pacific (West Turner) No. 3	6 of 32, 18-2	7850′	April 20, 1938	Nov. 29, 1938
Intercity No. 1	11 of 20, 18-2	8045′	Jan. 29, 1938	Dec. 8, 1938
Extension No. 1	14 of 17, 18-2	8020′	April 26, 1938	Jan. 2, 1939
Home-Millarville No. 2	6 of 33, 20-3	8495′	April 9, 1938	Jan. 8, 1939
Anglo-Canadian No. 3	10 of 17, 18-2	7736′	July 16, 1938	Jan. 16, 1939
D. and D. No. 1	12 of 9, 18-2	7388′	Aug. 23, 1938	Feb. 8, 1939
Royalite No. 36	13 of 32, 18-2	7910′	Sept. 5, 1938	Feb. 8, 1939
Royalite No. 37	11 of 5, 19-2	7628′	Sept. 7, 1938	Feb. 16, 1939

*Note:—Legal sub-division 4 of section 21, township 18, range 2.



A burning gas flare in the Valley connected with several producing wells

Divisional Inspection of Wells.—Prior to July 1st, 1939, when the Conservation Board was set up, an engineer was located in Turner Valley, where he made at least weekly visits to all drilling wells and made a monthly routine check-up of all orifice meters in use for measuring gas withdrawals. Another engineer

in Calgary kept supervision over drilling wells outside Turner Valley. A chemist and his assistant made quarterly tests of the wetness (recoverable natural gasoline) in gas leaving Turner Valley separators of wells on Crown lands, and in addition made analyses of oil field waters and oils.

Geological and Chemical Laboratories

Geological Laboratory.—The work of the geological laboratory includes the examination of the drill cuttings which are received from all drilling wells at intervals of ten feet or less. From a study of these cuttings the formations penetrated by the bit are correlated. Particular attention is paid to an examination of the porosity in the limestone producing horizons. Some cores were also examined either in the field or in the laboratory.

Chemical Laboratory.—The chemical laboratory is now equipped to make tests on crude oil, water and rock samples, and thus assist the operator in some of his drilling and production problems. Among the samples received in the laboratory during the year were 27 samples of crude oil and 33 samples of water, while 21 samples of road oil were tested for the Highways Branch of the Department of Public Works.

Complete analyses were made on several samples of crude oil and reports were made on a large number of oil shows. The number of water analyses available for study is gradually increasing. These analyses are increasingly valuable in helping the operator in his problems of shutting off water horizons.

The field work of the laboratory includes the testing of the separator tail gas from both oil and gas wells for the amount of recoverable natural gasoline in the gas. During the year some 280 charcoal tests were made for this purpose on wells situated on Crown lands.

Field headquarters of a Turner Valley operating company

TABLE
ANALYSES OF TURNER VALLEY CRUDE OILS

Gravity ○A.P.I.	Gasoline Naphtha	Kerosene	Gas Oil	Lube. Fraction	Residuum	Loss	Sulphur % Weight
39.0	38.6	6.1	25.2	16.7	12.7	.07	0.50
40.0	36.8	5.5	24.6	18.2	13.5	1.4	0.46
40.2	37.0	12.1	18.5	18.2	12.0	2.2	0.45
41.5	38.1	6.1	23.5	20.7	8.3	3.3	0.47
41.7	38.1	5.6	23.3	18.3	12.4	2.3	0.45
42.6	38.5	11.8	18.0	17.2	11.6	2.9	0.49
42.8	41.5	6.1	24.4	17.2	8.9	1.9	0.45
43.0	49.6	6.9	23.5	13.4	5.0	1.6	0.28
43.0	42.0	6.3	22.9	15.5	11.7	1.6	.....
43.6	43.0	6.2	24.6	15.6	9.0	1.6	0.56
43.8	45.1	13.8	18.3	15.6	6.1	1.1	0.44
44.7	41.4	11.6	17.3	16.8	9.7	3.2	0.48
45.4	50.5	15.4	17.2	11.0	4.9	1.0	0.47
45.8	43.9	13.1	18.4	14.8	7.4	2.4	0.51
45.8	46.4	5.9	22.2	15.5	6.0	4.0	0.42
46.0	46.1	12.9	17.6	14.4	6.5	2.5	0.44
46.1	52.0	7.1	21.5	10.9	5.9	2.6	0.27
46.5	48.9	13.8	16.4	12.6	6.1	2.2	0.30
47.8	47.4	13.6	16.6	12.0	8.3	2.1	0.58
49.9	60.4	12.1	13.3	9.7	2.8	1.7	0.43
50.4	62.4	11.7	12.3	8.4	3.3	1.9	0.50
59.5	88.2	3.8	1.9	.....	4.2	1.9	0.34

NOTE.—The above analyses were made by the modified Hempel distillation method. The base of all samples reported above is "intermediate." Wax is usually present. Carbon residue is small.

Gas Withdrawals from Turner Valley

Our present knowledge of the field suggests that gas withdrawals from the limestone oil well are derived from an intimate mechanical mixture of oil and of gas which was, at least when the oil zone was tapped, entirely in the liquid phase. The fluids are stored in pores which vary from microscopic size to vugs of considerable dimensions, and the portion which appears at the surface as gas cannot in many cases dissociate itself from the portion which appears as oil until produced. As pressure decreases, dissociation may take place in the larger vugs, the gas finding its way to wells and leaving oil behind. Some wells produce both from the gas cap and from the liquid phase zone, and in such cases it becomes impossible to distinguish the amount of gas recovered from the gas cap from the amount coming in with oil. In spite of these uncertainties as to source of gas, it is of interest to attempt an estimate of withdrawals from the liquid phase zone as distinguished from the gas cap. In making this estimate, the basis has been essentially the gas-oil ratio, using as a dividing line the criterion set by the Conservation Board of 31 Mcf/bbl. On this basis, total gas drawn to the end of the fiscal year was:—

Gas Cap	1,005,198,000 Mcf.
Oil Zone	33,600,000 Mcf.
TOTAL	1,038,798,000 Mcf.

Of this it is estimated that 168,395,000 Mcf. has been used as fuel, much of it in a rather wasteful manner, and the balance went to flares.

Drilling Progress

During the fiscal year the following footage was drilled:—

	Turner Valley	Foothills west of Turner Valley	Rest of Province	Total
April-June	89,228	2,093	13,628	104,949
July-September	72,283	5,171	14,061	91,515
October-December	55,732	435	16,122	72,289
January-March	78,097	749	20,326	99,172
TOTALS	295,340	8,448	64,137	367,925

Home Millarville No. 2, storage tanks in northern Turner Valley

Drilling Activity Outside Turner Valley

Aldersyde Area.—New Valley ran casing but did no drilling below the former depth of 8450 feet.

Sentinel carried the hole to about 7320 feet.

Anglo Canadian drilled its Twin Dome No. 1 in 7 of 16, 21-28, W.4, to 6944 feet and abandoned on finding water in the limestone.

Ranchmen No. 1 in 16 of 13, 20-29, W.4 carried on some fishing operations above 7230 feet.

Atlee.—The Dominion Department of Agriculture through the Prairie Farm Rehabilitation, drilled a No. 2 well in 15 of 10, 23-7, W.4 and obtained a small gas flow, possibly suitable as fuel for pumping water for irrigation purposes. Depth 1305 feet.

Bragg Creek.—Elbow No. 1 in 11 of 35, 22-5, W.5 carried its depth to 5582 feet and decided to abandon.

Moose No. 2 in 8 of 29, 22-6, W.5 was deepened to 1622 feet.

Brazeau.—Home No. 1 in unsurveyed territory, about 16 of 7, 43-17, W.5 reached 5052 feet at the end of March and drilling continued.

Ram River No. 1 in unsurveyed territory about 12 of 26, 38-12, W.5 reached 1104 feet with diamond drill at the end of March and was later abandoned at 1346 feet on encountering unfavourable geological conditions.

Dunn.—Blackfoot-Ribstone No. 1 in 7 of 28, 43-2, W.4 drilled to 2038 feet without obtaining oil or gas production, and suspended operations.

Ghost.—Grease Creek No. 1 in 2 of 13, 29-7, W.5 reached 2195 feet at the end of March and drilling was continuing.

Highwood.—Anglo Canadian No. 2 in 13 of 33, 16-2, W.5 drilled hoping to find an extension to Turner Valley and suspended at 6280 feet.

Willow Creek Holding Company started a hole in 8 of 19, 15-2, W.5 and suspended operations at 311 feet.

Green Valley-Banner No. 1 in 6 of 34, 17-3, W.5 carried its depth to 6936 feet and suspended operations.

Lethbridge.—Northwest Company drilled its Lethbridge South No. 1 in 8 of 1, 8-21, W.4 to 4095 feet, found water in the limestone and minor showings of oil, and abandoned.

Lethbridge Petroleum and Refineries No. 1 in 12 of 11, 8-22, W.4 was deepened to 2915 feet and suspended.

Lloydminster.—Lloydminster Royalties No. 1 in 4 of 36, 49-1, W.4 was drilled to 1922 feet, obtaining production of heavy oil of about 14°. Some oil was obtained by bailing and preparations were under way for installation of pumping equipment. This discovery created considerable interest and several new locations were made for future drilling.

Lundbreck.—Marjon-Lundbreck No. 1 in 3 of 4, 10-2, W.5 reached a depth of 6204 feet shortly after the end of the fiscal year and decided to abandon.

Maxmont No. 1 in 10 of 20, 9-2, W.5 continued drilling with cable tools and at the end of the year reached a depth of 8047 feet with open hole from 2857 feet, which is quite a remarkable record.

McMurray.—The salt plant built by Industrial Minerals was taken over by Dominion Tar and Chemical Company and another prospect hole was drilled in 2 of 10, 89-9, W.4 finding 211 feet of salt below 723 feet.

Medicine Hat.—Old wells have been reconditioned and repaired, but no new holes drilled. Some old wells in the area tributary have been abandoned.

Milk River.—Anglo Canadian Bridge Dome No. 1 in 13 of 4, 2-13, W.4 drilled to 2497 feet, obtaining only a showing of heavy black oil, and abandoned.

Range No. 3 in 15 of 20, 1-11, W.4 obtained a flow of gas at 2564 feet, but at 2612 feet there was water and in trying to shut off water the gas flow ceased. Plans were made to abandon. Subsequent to the end of the fiscal year hole was made to 2765 feet before abandoning.

Pouce Coupe.—The Batcheller test well in 10 of 24, 79-12, W.6 was drilled to 1224 feet for the purpose of studying formations.

Guardian No. 1 in 7 of 7, 80-12, W.6 was drilled to 2463 feet and shut down for the winter. Negotiations with eastern United States parties for financing a deep test were under way at the end of the year.

Spring Coulee-Del Bonita.—Terminal No. 1 in 15 of 18, 1-21, W.4 was reworked, cemented and gun perforated, with some production, gas containing a little oil.

Lyons-McIntyre No. 1 in 14 of 19, 3-21, W.4 was drilled to 3500 feet and suspended with lost tools in the hole.

Steveville.—Anaconda No. 1 in 15 of 9, 22-12, W.4 reached a depth of 2505 feet and was preparing to resume operations after being shut down part of the winter.

Anglo Canadian No. 1 in 2 of 13, 21-12, W.4 drilled to 3198 feet obtaining a large flow of gas at the top of the Blairmore with a little water and oil showings, from the same horizon, and salt water with a show of oil from the top of the palaeozoic. New technique was started by this company, of coring all prospective horizons, and cementing casing on bottom, after which tests of the well from bottom upward were conducted by gun perforating.

Anglo Canadian No. 2 in 4 of 14, 20-11, W.4 was started just before the end of March.

Stony.—Roxana No. 1 in 5 of 18, 24-7, W.5 was drilled to 3924 feet and after a long shut down time was preparing to resume in the summer of 1939.

Sundre.—Petroleum Structures No. 1 in 4 of 2, 33-7, W.5 was abandoned at 5216 feet on encountering a thrust fault which would have made the well so deep as to make production improbable.

Altoba-Clearwater No. 1 in about 5 of 31, 34-9, W.5 reached a depth of 2056 feet at the end of March using diamond drill and had obtained encouraging showings of oil and gas. Operations were continuing.

Taber.—Plains No. 4 in 15 of 25, 9-17, W.4 was drilled to 3557 feet without obtaining oil production.

Plains No. 5 in 2 of 36, 9-17, W.4 was drilled to 730 feet and suspended when No. 4 proved barren.

Border Petroleums resumed operations in the well originally drilled by Canadian Western as Barnwell No. 6 in 5 of 32, 9-17, W.4 and were preparing to deepen to the horizon where Plains No. 2 obtained oil.

North Taber Royalties No. 1 in 7 of 10, 11-15, W.4 drilled to 3070 feet and suspended temporarily. Operations after the end of March carried the depth to 3150 feet.

Vermilion.—Waintown Gas and Oil, Vermilion No. 1 in 16 of 26, 50-7, W.4 was drilled to 2099 feet without obtaining a satisfactory gas supply and abandoned.

Viking.—Well servicing and repair was carried on in this valuable gas field and No. 3 was abandoned.

Wainwright.—Montreal Alberta No. 1 in 2 of 15, 45-7, W.4 resumed and was preparing to deepen from about 3500 feet.

Pacalta-Battleview No. 1 in 3 of 5, 48-5, W.4 carried its depth to 2409 feet and suspended.

Waterton-Pincher Creek.—Anglo Canadian-Castle River No. 1 in 4 of 11, 6-1, W.5 was drilled to 7189 feet and operations discontinued on encountering unfavourable geological conditions.

Willow Creek.—Anglo Canadian-Savanna Creek No. 1 in 5 of 20, 14-4, W.5 was started with diamond drill and after finding progress difficult was preparing to change over to cable tools.

At the end of the fiscal year, completions in Turner Valley stood as follows:—

Gas wells drilled to limestone completion	116
Gas wells abandoned	13
Gas wells capable of producing	103
Oil wells drilled to limestone completion	71
Oil wells producing, end of fiscal year	70
(One well, Dalhousie 8, abandoned. Never produced.)	
Wells drilled to limestone at point below oil	1

OIL PRODUCTION IN ALBERTA

Fiscal year, 1938-39

	Barrels	Value of Sales
Turner Valley, oil wells, separators	6,011,112	$7,320,072
Turner Valley, gas wells, separators	112,128	129,083
Turner Valley, natural gasoline, plants	467,390	933,498
Turner Valley, shallow crude	9,038	12,978
Red Coulee	13,777	11,931
Wainwright	12,145	11,338
Miscellaneous	25,731	13,358
TOTALS	6,651,321	$8,432,258

	Barrels
Total oil production 1914-1937 (See Schedule of Wells)	13,772,302
Produced in 1938	6,742,039
Produced January-March, 1939	1,222,544
TOTAL	21,736,885

NUMBER OF WELLS PRODUCING OIL
Fiscal year, 1938-39

Turner Valley limestone oil wells	70	
Turner Valley limestone gas wells	103	
Turner Valley shallow crude wells	4	
	—	177
Red Coulee		7
Wainwright		6
Miscellaneous—Dina	2	
—Taber	1	
—Moose	1	
—Lloydminster	1	
	—	5
TOTAL		195

In addition, some oil was produced at Twin River, but reports were not received in time to include with publications made at the time.

Turner Valley gas wells.—Total shown includes all wells capable of producing since gas quotas were issued in that manner. Some of these wells did not actually come into operation.

GAS WELLS (except Turner Valley)
as at end of fiscal year

Medicine Hat-Redcliffe	46	Battleview	1
Bow Island	11	Fabyan	2
Foremost	6	Brooks	6
Milk River area	3		—
Viking	21	TOTAL	99
Kinsella	3		

OIL USED IN ALBERTA IN 1938
(Quantities in Barrels)

Stock, January 1st, 1938—		
Refined		613,358
Crude		242,431
Produced in Alberta		6,742,039
Imports except lubricants—		
From U.S., refined	325,303	
From B.C., refined	44,657	
From U.S., crude	232,776	
From B.C., crude	33,953	
		636,689
To account for		8,234,517
Exports (mostly to Saskatchewan)—		
Refined	787,424	
Crude	3,258,532	
		4,045,956
Fuel oil sold in Alberta		2,255,778
Loss in handling and refining (by difference)		1,034,002
Stocks, Dec. 31st—Refined		539,610
Crude		359,171
Accounted for		8,234,517

CRUDE OIL HANDLINGS

Stock, Jan. 1st, 1938 (Crude only)			242,431
Oil produced in Alberta		6,742,039	
Less separators at gas wells	121,439		
Less plant recoveries	531,434	652,873	
Leaves crude produced			6,089,166
Imports—From U.S. direct		232,776	
—Via B.C.		33,953	266,729
To account for			6,598,326
Crude exports			3,258,532
Crude stocks, Dec. 31st			359,171
By difference, crude refined in Alberta except crude from gas wells, etc.			2,980,623
Accounted for			6,598,326

Loss in handling and refining, 1,034,002, which is 34.7% of crude throughput. Fuel oil recovered is 65.3% of throughput. This compares with an average recovery of similar products in U.S. refineries of about 63%, made up of gasoline 45%, kerosene 5%, distillates, etc., 13%. Similar division of Alberta refined products is not available.

GAS CONSUMPTION IN ALBERTA 1938-39

		Thousands of cubic feet
From Foremost		4,362
From Turner Valley:		
Gas Company	6,260,916	
Refinery	1,362,415	
Storage and compressor fuel	1,314,357*	
Bow Island town	51,678	
Field use (largely estimated)	10,045,129	
		19,034,495
Brooks		49,319
From Wainwright—to town supply	98,269	
Field use (estimated)	19,000	
		117,269
From Viking to Edmonton and towns		3,388,401
Medicine Hat		1,979,484
Redcliff		706,000
Range—exported to Montana		307,652
Red Coulee—field use including export to Montana		39,918
TOTAL		25,626,900

*This does not constitute consumption, but is shown as it affects the general situation. Storage in Bow Island field ceased early in February, 1939 after 8½ years of injection during which about 13¼ million Mcf. (measured as at 14.4 pounds and 60°F.) of gas was injected.

PRESSURES IN GAS FIELDS, 1938

Turner Valley—810 to 392 pounds (no average attempted)
Viking—533 (average)
Medicine Hat-Redcliff—No tests (408 pounds in 1937)

In other gas fields so little gas was drawn that tests were of insignificant value.

ESTIMATE OF WITHDRAWALS AND WASTE OF GAS FROM TURNER VALLEY

	Mcf. Drawn	Mcf. Wasted
To end of March, 1935	717,110,000	614,050,000
1935-36	90,250,000	78,020,000
1936-37	87,000,000	74,710,000
1937-38	82,119,000	59,566,000
1938-39	63,093,000	44,057,000
TOTALS	1,039,572,000	870,403,000

Construction of pipe-line from Turner Valley to Calgary

Forestry

REPORT OF THE DIRECTOR OF FORESTRY, T. F. BLEFGEN

The fiscal year of 1938-39 does not permit of an expression of satisfaction with respect to the protection of forests or the disposal of forest products. Year after year there has been noted in the annual report deficiencies in the matter of forest protection which have been, and continue to be, very apparent. With respect to the utilization of forest products either within the provincial boundaries or beyond those boundaries, the situation has shown no improvement. These matters are dealt with in detail in the body of this report.

There is apparently little that can be done locally to improve conditions in the lumber industry, lumbering being dependent on the demand for forest products. A great deal, however, could be done to effect a large improvement in the matter of forest protection and if losses as a result of fire are reviewed covering the past twenty years, it will be apparent that more definite plans must be made, and that such plans must become effective if the remaining timber resource in this Province is to be protected and to be available for present and future generations.

In reports immediately preceding, the danger of large fire outbreaks in the Northern Alberta Forest District has been pointed to, principally for the reason that in this large district is to be found the major portion of forest resource and in which there is by far the largest percentage of timber operations and, to a great extent, the present and future supplies of accessible merchantable timber. Likewise in this large district is to be found the major portion of the remaining wild life of the Province. By this is meant both big and small game and fur bearers, and it is in this large district that at the present time forest protection organization does not meet the requirements of ordinary year to year hazard. This being the case, it can be well understood as to what occurs when an abnormal hazard is present and, regardless of the fact that when this does occur and regular seasonal staff is augmented by assisting patrolmen, the fact remains that the temporary staff, by reason of the terms of employment, lack experience and training.

Winter scene, Swan Hills area, northern Alberta

More headway in the matter of forest protection improvements has been made through the provision of a look-out system covering the Edmonton, Edson and Athabaska Divisions. Good results will be obtained from this detection service even in the present circumstances of ranger staff strength for the most up-to-date method of communication, namely radio, is employed. The full benefit of the detection service being organized will not be obtained until a sufficient staff of rangers and rangers' assistants is employed to permit of proper coverage within acceptable time limits. Regardless of the fact that the field staff of the Forest Service is considerably under-staffed, it is again necessary to point to the services rendered by all individuals. In practically all cases, the members of the field staff have toiled unremittingly, putting in exceptionally long hours and showing a loyalty to the cause of forest protection that is highly commendable.

The Forest Nursery, operations based mainly at the Oliver Mental Institute, continues on a highly satisfactory plane. While the output is somewhat limited, the experience and training being gained through this nursery operation will permit of a large expansion just as soon as that may be decided upon. In the meantime, it is serving a very useful purpose in providing a supply of planting stock to the other Government institutions and to numerous settlers and farmers.

Forest Protection

In previous Annual Reports the situation respecting forest protection has been dealt with in a definite way. In particular the Northern Alberta Forest District has been referred to, the mounting hazard from settlement discussed and protection deficiencies indicated. Protection staff strength is lower than for many years, whereas the danger to forest cover has increased a thousandfold. Until remedial measures are taken no improvement should be looked for in protection accomplishment.

Fire Season.—In the winter of 1937-38 the snowfall, generally speaking, was somewhat normal and was followed by a comparatively early, dry spring season, particularly in Northern Alberta. This condition followed the fall season of 1937 during which many extensive fires occurred as a result of extremely dry weather, and thus it will be understood that at the commencement of the spring season of 1938, the Forest Service was faced with abnormal conditions. Relief from drought conditions was experienced in the southern mountain region but from the

Reproduction of white spruce—Mile 20 Holmes trail

A stand of spruce, Clearwater Valley near McMurray

Athabaska Valley north there occurred little or no relief. On the contrary, the drought became intensified as the summer progressed and this condition covered the entire northern part of the Province.

Fire Prevention.—If success is to be attained in the matter of forest protection, greater stress is necessary on fire prevention. That requires, first, up-to-date legislation; second, the proper enforcement of this legislation; third, complete co-operation of the general public; fourth, proper coverage of all forest districts. The more definite effort toward fire prevention will most certainly be reflected in two important items:

1. The loss through the destruction of timber will be greatly reduced.
2. A large reduction will be evident in the matter of fire-fighting expenditures.

To the extent possible under existing circumstances of staff appropriation, detection services, etc., fire prevention is a major objective. One of the most effective means of preventing losses by fire will be the more definite control of

burning operations by settlers and the more definite control of forest travel. The first item is being dealt with to the extent possible through the medium of the Free Burning Permit.

BURNING PERMITS ISSUED, PROVINCE OF ALBERTA, 1938

By the Forest Service:			
Cypress Hills	.....		
Crowsnest-Bow River	37		
Clearwater	438		
Brazeau-Athabaska	13		
By the staff of the Forest Reserves		488	
Edmonton	119		
Edson	35		
Athabaska	197		
Bonnyville	.....		
McMurray	.....		
Slave Lake	172		
Grande Prairie	180		
Peace River	52		
By the staff of the Northern Alberta Forest District		755	
Sub-total		1,243	1,243
By Outside Agencies:			
Honorary Fire Guardians:			
Edmonton	99		
Edson	191		
Athabaska	79		
Bonnyville	23		
McMurray	.....		
Slave Lake	135		
Grande Prairie	209		
Peace River	389		
		1,125	
Fire Guardians in Municipal Districts		641	
Royal Canadian Mounted Police		756	
Sub-total		2,522	2,522
TOTAL			3,765

PROSECUTIONS AND CONVICTIONS, PRAIRIE FIRES ACT, 1938

	Instituted by Forest Service	Instituted by other Agencies	Totals
Number of prosecutions	43	51	94
Number of convictions	40	43	83

Camp Hay River wagon road—Mile 20

Fire Detection.—Mention has been made of the provision of fire detection services in the Edmonton, Edson and Athabaska Divisions of the N.A.F.D. An intensive coverage is not being sought. On the other hand, visual coverage is believed to be ample, and with the completion of the look-out units planned and the provision of two-way radio communication equipment for look-outs, rangers and administrative control points, a vast improvement will have been made and the benefits of this improvement will be immediately noticeable. Regardless of the effort towards fire prevention, detection services in varying intensity of coverage will always be required, for it is unlikely that the careless person will be entirely eliminated or that the occasional fire will not break from the control of the settler. Finally, there always exists the hazard from lightning. The detection service now in operation or being planned should be extended as rapidly as funds permit.

Results of a camp-fire not properly extinguished

The use of radio communication in connection with forest protection and administration was started during the summer of 1938 with the installation of radio equipment at five lookout towers located at the following points:—Buck Mountain Lookout—south-west quarter section 13-47-6, west 5th meridian; Whitecourt Lookout—south half 21-58-12, west 5th meridian; Lovett Lookout—south-east quarter section 21-47-19, west 5th meridian; Carrot Creek—section 33-51-13, west 5th meridian, and Mayberne Lookout—south half 30-56-18, west 5th meridian. Approximate altitudes are as follows: Buck Mountain 3100′; Whitecourt 3500′; Lovett 5000′; Carrot Creek 3700′ and Mayberne 4800′. All these towers, with the exception of the Lovett tower, were erected during the period 1933-38 in anticipation of the establishment of radio communication. The Lovett tower, which is situated in the Brazeau-Athabaska Forest Reserve, has been in use for several years and is linked with the telephone system through that forest.

The Buck Mountain, Whitecourt and Mayberne towers are of standard wooden tower construction, composed of round timbers properly braced and guyed, and are approximately forty feet high to the floor level of the cupola. The Carrot Creek tower is a standard lookout tower of steel, construction eighty feet high.

An effort was made to standardize the lookout towers and their associated buildings as much as possible, and with the exception of the Carrot Creek tower which has an octagonal cupola at the top, this idea was carried out. The wooden towers are topped with an enclosed cupola approximately seven feet square with sliding windows on all four sides. The corner posts of the cupola are reduced in size sufficiently to give a wide angle of vision from any one window which overlaps that from an adjacent window. The roof is shingled and securely braced at four corners by means of wire ties fastened to the corner posts and protection from lightning is obtained by means of a suitable conductor system which is grounded at the four corners of the tower. Wooden shutters, opening outward and hinged at the top, offer protection from hail and sun without obscuring vision in any way.

Inside the cupola a slide-top table is permanently mounted at a suitable height from the floor and a 360° protractor is properly oriented upon it, which in conjunction with a sighting vane mounted above the protractor, allows accurate sights to be taken on smokes as soon as they are noticed. In addition, the cupola contains the radio receiver and remote control panels for the transmitter and power supply.

Buck Mountain lookout tower

The living quarters, 12′×16′, with double walls and floor, and an engine house 5′×5′, complete the standard arrangement of buildings at all lookout points. It was originally intended to have the living quarters constructed with a single layer of drop siding over the two-by-fours, but this type of construction was found to be inadequate so the design was changed to allow for sheathing, paper and drop-siding. Buildings completed prior to this change were modified by the addition of a complete coat of shingles. All construction work, tower construction, carpentry, painting, etc., was done by Forestry personnel.

The first radio installation to be completed was at Buck Mountain, where, prior to the installation work being commenced, prospective lookout-men radio operators, selected from the Youth Forestry Training Project personnel, had been given a brief course of training in the theory and practice of radio operating. These men were then utilized in assisting with the actual work of installation.

A brief description of the equipment is given below. The power source consists of a gasoline driven alternator, capable of an output of 750 watts, 110 V,

60 cycle A.C., which is suitably mounted in the engine house. Power is taken by means of flexible conduit to both the living quarters and the cupola for use at the transmitter and receiver respectively. In addition, the necessary control wiring is run between the engine house, living quarters and cupola in order that the motor may be started or stopped from either of the latter points.

Two antennae are provided, a half wave dipole for transmission, and a doublet for reception. The lead-in from the dipole is taken into the living quarters through a suitable protective device to the transmitter, and the lead-in from the doublet receiving antenna runs direct to the cupola. The necessary control wiring is run between the transmitter and its control panel in the cupola to allow for its being remotely controlled. The transmitter has a power output of 50 watts on phone and 200 watts on C.W. and is crystal controlled on both operating frequencies. The receiver, a standard-all wave Superheterodyne, may be operated either in the cupola or the living quarters, and a simple carrier system was devised to allow the receiver to be easily transported from the ground to the cupola or vice versa.

The masts for both antennae consist of peeled poles, suitably guyed, and are arranged, where the terrain permits, so that the various antennae at each station are more or less directional. The ground systems vary with locale, but in most cases good enough ground conditions were found to warrant the use of a ground plate. In others, a radial ground is used, and in some cases both.

The remaining installations were completed in the following order, Mayberne, Carrot Creek, Whitecourt and Lovett, and in a similar manner to that already outlined, although the antenna layout and the location of the buildings varied slightly with each location. Separate problems of interference elimination were also encountered with each installation.

The transportation of equipment to each tower site in most cases presented a major problem. To carry fifteen hundred pounds of delicate equipment over several miles of secondary trails is not an easy undertaking, and although in some cases it was possible to get a lightly loaded wagon all the way to the tower site, in certain cases other methods had to be adopted. As the equipment did not

Sample of timber in the Clearwater Reserve

End view of brush which has been properly piled

readily lend itself to pack-horse transport, some individual pieces weighing in the order of four hundred pounds, it was necessary to utilize, in three separate instances, the form of conveyance known as the stone-boat or sloop. At Mayberne Lookout, approximately thirty-one miles by road and trail from Edson, it was necessary to use three methods of transportation. The first fourteen miles were covered by truck and the equipment was then moved by wagon, a half truck-load at a time, to a point three-quarters of a mile from the town-site from which it was taken one or two pieces at a time on a stone-boat to the actual site. A similar method was used at Carrot Creek, about eighteen miles from the railway. By using old winter roads it was possible to take the complete load about half way to the tower site. Half the load was left, and the remainder taken to a point about a mile from the tower site, the wagon returning for the remainder on the following day. A stone-boat was again used to take the equipment over the last mile for which a new trail had to be cut. Despite the exceptional bumping and jarring received by the equipment due to this method of transport, no serious damage was done and any necessary minor repairs were made without difficulty at the station-site.

The question of interference elimination was an annoying problem in each case. At Buck Mountain, the dry sandy soil prevented good ground connections being made between various portions of the equipment and necessitated the installation of a considerable number of filtering devices. A similar condition was found at the Lovet station, but the other locations afforded slightly better ground connections with a corresponding reduction in the number of filtering devices required. Another problem has since arisen in the fact that the ground resistance at most points varies considerably throughout the season, which causes a noticeable change in noise level from month to month. A method of overcoming this condition will be evolved during the coming year.

Despite the fact that the Lovett installation was not completed until September, the system as a whole handled a total of 4,506 messages and 41,562 words before the end of the season. This traffic consisted of a daily exchange

of weather information over the entire system and also the passing of necessary information with regard to fires sighted. Daily reports from the lookout system were passed to the Head Office through the R.C. Signals Radio Station in Edmonton.

In addition to the radio equipment installed in the towers, two rangers in the vicinity of the Buck Mountain station were equipped with small portable receivers with which they were able to receive daily broadcasts of fire conditions from the Buck Mountain tower. These receivers were found extremely useful and were carried by the rangers concerned at all times.

Radio Equipment.—Upon completion of the lookout tower installations the Assistant Director of Forestry, accompanied by the Radio Superintendent, travelled to Spokane, Washington, and later to Portland, Oregon, to observe the portable radio transmitting and receiving equipment in use in the U.S. Forest Service.

The radio laboratory, under the direction of Mr. H. E. Simson of the U.S. Department of Agriculture, Forest Service, was a model of completeness, and all necessary equipment was available for the complete construction of almost any type of transmitter or receiver. After seeing the entire cycle of operations in the production of such equipment it was decided to purchase a suitable number of each of two types, viz. a portable, battery powered transmitter-received for ranger use, and a more powerful mobile type of transmitter for installation in cars or trucks.

It was considered that this visit was of inestimable value to this Department, not only because of the information gained, but also on account of the personal contacts effected with Mr. Simson and his staff, and with the manufacturers of this type of equipment. There is now at the disposal of this government a source of information with a wealth of practical experience, and the exchange of ideas on communication methods between the two countries it is hoped will be beneficial to both.

Very little actual maintenance work was required to keep the radio system in operation, although every effort was made to foresee possible sources of equipment failure, and take the necessary steps to combat them before they actually occurred. The lookout-men radio operators functioned more efficiently than was expected, considering the extremely scanty training they had had prior to commencing actual station operation, and the operation of the communication system as a whole was entirely satisfactory. As the equipment becomes older, more maintenance will of course become necessary.

Upon the termination of the fire season the radio equipment at each tower was dismantled and stored at the tower site, care being taken that none of it should suffer from frost or exposure. This work was mainly done under the direct supervision of the Radio Superintendent to ensure that all possible precautions for avoiding damage to the equipment were taken.

During the month of December the portable equipment purchased in Portland was received and tested. Later, a new transmitter for fixed station use more suited to the Forestry's requirements was designed and constructed by the Radio Superintendent, and further tests under actual field conditions were carried out, using this transmitter and the various portable units. Tests were also carried out on a Marconi type receiver for automobile use.

Certain changes in the equipment at the tower-sites which became advisable after observation of the equipment in operation, were recommended, and will be made prior to the commencement of next season's operations, and the necessary fuel supplies for the operation of the various units were forwarded to the tower-sites in order to avoid, as much as possible, such difficulties in transportation as might arise at the start of the fire season.

Spruce along the Athabaska River

All necessary preparations for the re-opening of the various lookout stations and for the distribution of the portable units now on hand were made prior to the beginning of the fire season. In addition, every effort was made to assist Forestry personnel to train themselves in the operation of such radio equipment as might be allotted for their use and preliminary surveys of proposed station sites were made with a view to obtaining necessary information on local conditions prior to the actual installation of equipment.

Fire Suppression.—In that portion of the Province, north of township 58, the 1938 season was one of the driest on record. The spring of the season opened up with dry, hot winds, following a winter of exceptionally light snowfall, which created an almost uncontrollable condition for the spread of fires.

Added to this hazard the Forest Service was forced to contend with the condition in the Grande Prairie and Peace River country, created by new settlers who had located in bush country, a number having migrated from the drought areas in the southern part of the Province. These settlers did not realize the havoc wrought by fires to the soil humus in some instances, while others were only interested in clearing the land for cultivation, and not having had previous experience with brush burning or land clearing, having come from the prairie sections, they started fires on their own land, in most cases under permit, in the early part of the season, but did not guard them sufficiently to prevent their spread, and later under cover of the blanket of smoke that covered the whole district, a great number of slashing fires were started.

Added to this, the total absence of moisture in the form of spring rains brought about an unprecedented condition and fire hazard.

It has been pointed out from time to time in the annual reports of this Division, and elsewhere, that the organization in strength conditions and facilities in this region is only elementary and cannot be expected to cope with normal conditions with a minimum loss. Much less could it do so during the season under review, which was the driest on record. The members of the field force did very good work in spite of the numerous handicaps under which they were forced to work, putting in long hard hours at exceptionally hazardous work.

Fire-fighting can only be considered at best as an emergency operation, and can possibly never be entirely eliminated. It can, however, be greatly reduced by confining settlement, especially in the north, to those areas suitable for agricultural purposes and especially to the lands that are easily cleared without resorting to the use of broadcast burning.

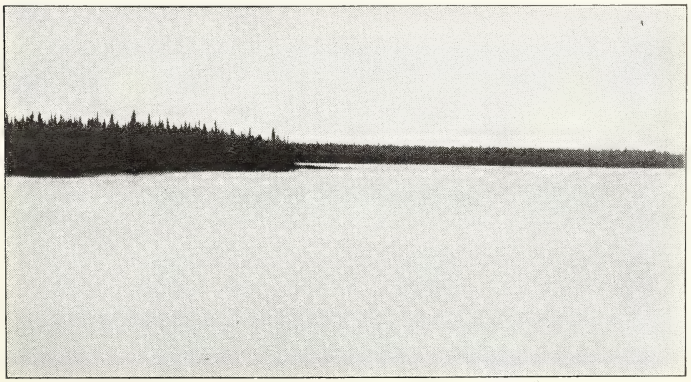
Furthermore, fire suppression will not meet the desired requirements until pre-organization is permitted. This depends on the employment of a field force of ample strength at the most advantageous periods of the year, and the purchase of the necessary equipment before actual necessity arises.

During the fire season of 1938 a total of 521 fires were dealt with, 333 being in the large or C and D classes, the remainder being under 10 acres in extent.

The total loss is estimated at $2,046,236.27, and suppression costs, including ranger services actually expended on fires, is $217,055.49.

While the season in the northern part of the Province was abnormal both as to dryness and as to the length of the hazardous period on record, a normal season was experienced in the central and the southern part of the Province, and it is noteworthy that on the timbered areas on the east slope of the Rocky Mountains, and especially in the forest reserves, the fire occurrence and loss was held to a minimum, largely through the vigilance and energy of the officers and staff concerned. I feel, however, that I would be remiss in my duty if I did not commend the large and increasing number of campers and tourists, who each year make greater use of the forest reserves for camping and recreational purposes, for their co-operation and care of fire while in the forests. It is true that better facilities in the form of camp-grounds, shelters and fire-places have been provided for those spending holidays and seeking recreation in the forests, but the improvements alone are not the entire reason for the splendid co-operation we are receiving. The realization by the general public that they must help by exercising great care with all forms of fire, if their favourite camping districts are to remain attractive, is becoming more noticeable.

Although a great number of the general public are becoming more fire conscious there is room for improvement, as there are some who are not sufficiently cognizant of their responsibilities relative to their preserving a natural heritage that once destroyed will take years to replace. The comparison of fire causes shows that those caused from camp fires are still at the top of the list.



Stand of spruce timber at mouth of the Peace River

COMPARISON OF FIRE CAUSES BY PERCENTAGE

Causes	1931	1932	1933	1934	1935	1936	1937	1938
Campers	23.7	52.8	38.9	35.4	42.3	38.3	35.9	27.4
Smokers	3.2	5.3	13.5	11.7	9.3	9.7	4.5	3.6
Settlers	21.9	17.1	17.4	17.9	8.2	11.7	20.7	14.6
Railways	6.6	4.5	2.8	5.0	10.3	4.0	9.3	4.2
Lightning	.6	2.6	5.2	7.5	1.0	14.1	2.2	2.3
Industrial operations	1.9	1.1	1.7	4.2	1.0	3.2	.8	1.4
Incendiary	15.1	8.2	11.8	11.2	22.7	10.1	13.5	14.6
Public works	1.4	.5	1.4	1.3	1.0	.4	.3	.8
Unclassified	1.5	1.6	....	2.5	2.1	2.0	7.2	9.0
Unknown	24.1	6.3	7.3	3.3	2.1	6.5	5.6	22.1

RAILWAY FIRE LOSSES, CALENDAR YEAR 1938

This statement deals only with fires burning on forested areas under the supervision of the Alberta Forest Service, and which started within 300 feet of the centre line of the railway right of way.

Causes and number of fires:		
Railway causes—Locomotives	14	
Employees	4	
Sub-total	18	
		18
Other causes—Campers and travellers	10	
Settlers	5	
Unknown	22	
Unclassified	1	
Sub-total	38	
		38
TOTAL		56
Number of acres burned:		
Slashing or old burn		14,480
Timber land		1,419
Young growth		7,203
Not forested		547
TOTAL		23,649
Loss:		
Timber		$ 4,350.00
Young growth		42,507.00
Forest products		25.00
Other property		79.00
TOTAL		$46,961.00

ANNUAL STATEMENT OF FIRES BY CAUSES, MONTHLY DISTRIBUTION, ETC., WITHIN AND OUTSIDE FOREST RESERVES, ALBERTA—CALENDAR YEAR 1938

Cause	Number					P.C.	Damage	Area, Acres	Monthly Distribution														Prosecutions	Convictions	Fires Inside Provincial Forests		Fires Outside Provincial Forests	
	A	B	C	D	Tot.				January	February	March	April	May	June	July	August	September	October	November	December			No.	Area Acres	No.	Area Acres
Camp-fires	35	26	34	48	143	27.4	$ 889,533.66	557,118	...	...	...	5	24	26	11	12	35	17	9	4	...	...	2	.....	141	557,118
Smokers	2	10	5	2	19	3.6	13,636.82	6,673	...	...	...	1	7	5	...	...	5	1	...	...	...	...	3	2½	16	6,670½
Settlers	12	3	24	37	76	14.6	189,795.11	198,306½	...	...	...	7	24	15	3	2	8	17	...	...	...	...	...	.....	76	198,306½
Railways	8	10	2	2	22	4.2	46,036.00	28,960¾	...	...	...	2	5	6	1	...	2	6	...	...	...	...	...	.....	22	28,960¾
Lightning	3	3	2	4	12	2.3	40,066.38	14,778½	...	...	...	...	...	1	9	1	1	...	...	...	...	...	7	13,109	5	1,669½
Industrial Operations	5	2	...	...	7	1.4	1.00	9	...	...	...	2	2	1	...	...	1	...	...	1	...	...	1	.....	6	9
Incendiary	4	11	31	30	76	14.6	285,205.00	324,914¾	...	...	...	3	22	22	3	1	18	7	...	...	...	...	...	.....	76	324,914¾
Public Works	2	2	...	...	4	.8	25.00	5	...	...	...	...	1	...	...	...	...	3	...	...	...	...	...	.....	4	5
Unclassified	5	4	17	21	47	9.0	144,994.36	181,352	...	...	...	1	4	9	8	4	11	8	...	2	...	...	2	.....	45	181,352
Unknown	16	25	35	39	115	22.1	436,942.94	446,228	...	...	...	3	28	26	5	11	26	12	2	2	...	...	3	.....	112	446,228
TOTALS	92	96	150	183	521	100.00	$2,046,236.27	1,758,345½	...	...	...	24	117	111	40	31	107	71	11	9	...	...	18	13,111½	503	1,745,234
Per cent.	17.7	18.6	29.5	34.2	100							4.6	22.5	21.3	7.7	6	20.5	13.6	2.1	1.7	...	...	3.5	.....	96.5	

ANNUAL SUMMARY OF FOREST FIRE LOSSES, ALBERTA—CALENDAR YEAR, 1938

FIRE CAUSES	NUMBER OF FIRES					LANDS AFFECTED							LOSS										SUPPRESSION COSTS			
	CLASS					Ownership		AREA	CONDITION				TIMBER (MERCHANTABLE AND CUT-OVER)													
													SALVABLE			UNSALVABLE										
	A	B	C	D	Total	Public, Acres	Private, Acres	Total, Acres	Merchantable Timber, Acres	Cut-over Timber, Acres	Young Growth, Acres	Not Forested, Acres	Saw-timber, M.ft.B.M.	Other, Cords	Depreciation	Saw-timber, M.ft.B.M.	Other, Cords	Loss	Loss of Timber	Loss of Young Growth	Loss of Other Property	Total Loss	Ranger Service	Other Expenditures	Total	Burning Permits Issued
FIRES WITHIN FOREST RESERVES																										
Campers	2	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	$ 2.42	$ 7.84	$ 10.26	...
Smokers	1	2	...	...	3	2½	...	2½	...	...	2½	...	...	...	...	...	...	...	...	$ 5.32	...	$ 5.32	40.96	32.75	73.71	...
Settlers	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Railways	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lightning	3	1	...	3	7	13,109	...	13,109	4,753½	...	4,525½	3,830	13,740	...	...	514½	1½	$ 27,845.13	$ 27,845.13	8,691.00	...	36,536.13	960.79	8,353.77	9,314.56	...
Industrial Operations	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Incendiary	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Unclassified	2	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6.48	...	6.48	...
Unknown	3	...	...	...	3	...	...	...	...	...	...	...	...	5	...	4	...	15.00	15.00	...	...	15.00	10.64	7.14	17.78	...
TOTALS	12	3	...	3	18	13,111½	...	13,111½	4,753½	...	4,528	3,830	13,740	5	...	518½	1½	$ 27,860.13	$ 27,860.13	$ 8,696.32	...	$ 36,556.45	$ 1,021.29	$ 8,401.50	$ 9,422.79	...
FIRES OUTSIDE FOREST RESERVES																										
Campers	33	26	34	48	141	556,355¾	762¼	557,118	203,512¼	657¼	100,480	252,468½	30,670	860	...	417,221	832,630	$ 707,413.66	$ 707,413.66	$181,905.00	$ 215.00	$ 889,533.66	$ 2,334.41	$ 47,043.45	$ 49,377.86	...
Smokers	1	8	5	2	16	6,530½	140	6,670½	3,928	...	1,450	1,292½	82	20	...	150	23,540	11,819.00	11,819.00	1,812.50	...	13,631.50	75.78	711.24	787.02	...
Settlers	12	3	24	37	76	186,607½	11,699	198,306½	39,810½	12,300	50,280	95,916	416½	2,330	...	42,135	127,173	115,428.12	115,428.12	73,106.49	1,260.50	189,795.11	1,682.79	25,236.66	26,919.45	...
Railways	8	10	2	2	22	28,950¾	10	28,960¾	3,216	14,180	11,394	170¾	...	5	...	2,300	49,445	38,286.25	38,286.25	7,685.00	64.75	46,036.00	122.50	7,494.12	7,616.62	...
Lightning	...	2	2	1	5	1,669½	...	1,669½	18	...	710	941½	...	...	...	...	20	24.00	24.00	3,506.25	...	3,530.25	55.19	2,085.56	2,140.75	...
Industrial Operations	4	2	...	...	6	6	3	9	...	3	...	6	...	4	...	...	...	1.00	1.00	...	...	1.00	37.36	337.21	374.57	...
Incendiary	4	11	31	30	76	319,078¾	5,836	324,914¾	81,911¼	9,681	94,024	139,298½	1,852	5,000	...	26,155½	478,949	203,573.50	203,573.50	81,206.25	425.25	285,205.00	1,313.54	41,223.87	42,537.41	...
Public Works	2	2	...	...	4	3	2	5	3	...	2	...	...	...	...	...	40	25.00	25.00	...	...	25.00	1.72	8.25	9.97	...
Unclassified	3	4	17	21	45	180,564	788	181,352	24,734½	1,943	11,577	143,097½	1,300	...	...	63,020½	122,369½	132,236.61	132,236.61	12,757.75	...	144,994.36	889.02	24,351.00	25,240.02	...
Unknown	13	25	35	39	112	437,705¾	8,522¼	446,228	94,345¾	5,676¾	140,842¾	205,362¾	1,062	14,835	...	99,862½	340,485	240,839.13	240,839.13	196,083.81	5.00	436,927.94	2,445.24	43,086.69	45,531.93	...
																						Miscellaneous	...	7,097.10	7,097.10	...
TOTALS	80	93	150	180	503	1,717,471½	27,762½	1,745,234	451,479¼	44,441	410,759¾	838,554	35,382½	23,054	...	650,844½	1,974,651½	$1,449,646.27	$1,449,646.27	$558,063.05	$1,970.50	$2,009,679.82	$ 8,957.55	$198,675.15	$207,632.70	...
FIRES WITHIN AND WITHOUT FOREST RESERVES																										
Campers	35	26	34	48	143	556,355¾	762¼	557,118	203,512¼	657¼	100,480	252,468½	30,670	860	...	417,221	832,630	$ 707,413.66	$ 707,413.66	$181,905.00	$ 215.00	$ 889,533.66	$ 2,336.83	$ 47,051.29	$ 49,388.12	...
Smokers	2	10	5	2	19	6,533	140	6,673	3,928	...	1,452½	1,292½	82	20	...	150	23,540	11,819.00	11,819.00	1,817.82	...	13,636.82	116.74	743.99	860.73	...
Settlers	12	3	24	37	76	186,607½	11,699	198,306½	39,810½	12,300	50,280	95,916	416½	2,330	...	42,135	127,173	115,428.12	115,428.12	73,106.49	1,260.50	189,795.11	1,682.79	25,236.66	26,919.45	...
Railways	8	10	2	2	22	28,950¾	10	28,960¾	3,216	14,180	11,394	170¾	...	5	...	2,300	49,445	38,286.25	38,286.25	7,685.00	64.75	46,036.00	122.50	7,494.12	7,616.62	...
Lightning	3	3	2	4	12	14,778½	...	14,778½	4,771½	...	5,235½	4,771½	13,740	...	...	514½	21½	27,869.13	27,869.13	12,197.25	...	40,066.38	1,015.98	10,439.33	11,455.31	...
Industrial Operations	5	2	...	...	7	6	3	9	...	3	...	6	...	4	...	...	...	1.00	1.00	...	...	1.00	37.36	337.21	374.57	...
Incendiary	4	11	31	30	76	319,078¾	5,836	324,914¾	81,911¼	9,681	94,024	139,298½	1,852	5,000	...	26,155½	478,949	203,573.50	203,573.50	81,206.25	425.25	285,205.00	1,313.54	41,223.87	42,537.41	...
Unclassified	5	4	17	21	47	180,564	788	181,352	24,734½	1,943	11,577	143,097½	1,300	...	...	63,020½	122,369½	132,236.61	132,236.61	12,757.75	...	144,994.36	895.50	24,351.00	25,246.50	...
Unknown	16	25	35	39	115	437,705¾	8,522¼	446,228	94,345¾	5,676¾	140,842¾	205,362¾	1,062	14,840	...	99,866½	340,485	240,854.13	240,854.13	196,083.81	5.00	436,942.94	2,455.88	43,093.83	45,549.71	...
Public Works	2	2	...	...	4	3	2	5	3	...	2	...	...	...	...	...	40	25.00	25.00	...	...	25.00	1.72	8.25	9.97	...
																						Miscellaneous	...	7,097.10	7,097.10	...
TOTALS	92	96	150	183	521	1,730,583	27,762½	1,758,345½	456,232¾	44,441	415,287¾	842,384	49,122½	23,059	...	651,363	1,974,653	$1,477,506.40	$1,477,506.40	$566,759.37	$1,970.50	$2,046,236.27	$ 9,978.84	$207,076.65	$217,055.49	...
SUMMARY BY DIVISIONS																										
N.A.F.D.*	79	92	150	179	500	1,717,470	27,762½	1,745,232½	451,479¼	44,441	410,759¾	838,552½	35,382½	23,054	...	650,844½	1,974,651½	$1,449,646.27	$1,449,646.27	$558,063.05	$1,970.50	$2,009,679.82	$ 8,719.50	$190,542.43	$199,261.93	...
Clearwater	...	1	...	...	1	4	...	4	3½	...	½	...	...	...	...	14½	...	14.40	14.40	1.50	...	15.90	...	374.41	374.41	...
Crowsnest-Bow River	5	1	...	1	7	1	...	1	...	...	1	...	...	...	...	...	1½	.73	.73	2.50	...	3.23	265.14	1,029.07	1,294.21	...
Brazeau-Athabaska	8	2	...	3	13	13,108	...	13,108	4,750	...	4,526½	3,831½	13,740	5	...	4	...	27,845.00	27,845.00	8,692.32	...	36,537.32	994.20	8,033.64	9,027.84	...
Cypress Hills	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
																						Miscellaneous		7,097.10	7,097.10	...
TOTALS	92	96	150	183	521	1,730,583	27,762½	1,758,345½	456,232¾	44,441	415,287¾	842,384	49,122½	23,059	...	651,363	1,974,653	$1,477,506.40	$1,477,506.40	$566,759.37	$1,970.50	$2,046,236.27	$ 9,978.84	$207,076.65	$217,055.49	...

*N.A.F.D.—Northern Alberta Forest District.

SUMMARY SHOWING TOTAL NUMBER OF FIRES AND BURNT OVER AREA FROM 1931 TO 1938 INCLUSIVE

Year	Total No. of Fires	Total Acreage	Not Forested	Net Acreage
1931	622	604,876.12	209,064.75	395,811.37
1932	379	136,117.89	68,253.42	67,864.47
1933	288	93,765	30,955.88	62,809.12
1934	240	58,870	21,656.5	37,213.5
1935	97	6,319.75	3,267.75	3,052
1936	248	204,454	46,534	157,920
1937	375	835,259	155,069.5	680,189.5
1938	521	1,758,345.5	842,384	915,961.5
TOTALS	2,770	3,698,007.26	1,377,185.80	2,320,821.46

Personnel.—Forest protection, to be of value, must concentrate on fire prevention and early control of such fires that occur, and in order to be effective sufficient staff of a high calibre must be employed, if not during the entire year for at least a great portion thereof, so that sufficient interest can be maintained to secure and retain men with the required qualifications.

The employment of adequate or nearly an adequate staff for forest protection has been amply demonstrated in effectiveness in other countries and in other provinces of the Dominion by the reduced losses in timber and suppression costs.

Since 1932 the field staff has been almost entirely seasonal, and appointments were not possible in some districts until well after the spring danger period had arrived. This procedure places the ranger at a great disadvantage by reason of the fact that he has not had an opportunity to check over his district for winter camp fires smoldering in the ground that are caused by fires left by hunters and campers during the previous winter. It is admitted that he might not find all such fires. However, early patrols have demonstrated their effectiveness in controlling this class of fire before the winds fan the smoldering fire into a conflagration.

Under the present financial conditions it does not seem possible to obtain sufficient appropriation so as to employ an adequate staff for the northern districts, but I again wish to stress the necessity of having all seasonal personnel appointed and ready to assume their duties sufficiently early in the spring to check their districts before the spring danger period arises.

Fire-fighting Equipment.—The equipment situation remains practically the same as accounted for in former reports, with the exception of the purchase of emergency equipment during the season under review.

While this form of purchase assists in adding to our meagre supply, it is not at all desirable; in fact it would be much better for all concerned if we were allowed to purchase a sufficient supply of standardized material on a competitive basis well before the fire season arrives. It would then be possible to distribute this equipment to the different districts to be on hand when needed.

Forest Administration

Provincial Forest Reserves.—This section of the report deals with timber disposed of from the forest reserves. Compared with other years the year under review can be taken as an average. The amount of saw-logs taken out for lumber is in excess of the average for other years, but mine props are below previous years.

The general economic condition is the major influence affecting the timber industry, and as the market for coal has been somewhat slack during the year under review, the demand for mining timber has fallen off somewhat. We do not expect any noticeable increase in the demand for different classes of timber until such time as the farmers have a good crop and are able to obtain a fair price for their products.

TIMBER CUT UNDER PERMIT, ALBERTA FOREST RESERVES—FISCAL YEAR 1938-39

	Cooking Lake	Cypress Hills	Crowsnest-Bow River	Clearwater	Brazeau-Athabaska	Totals
Number of permits	57	198	259	27	30	571
Fuelwood, dry (cords)	135	576	3,362	68	252	4,393
Fuelwood, green (cords)	....	.....	46	.....	3	49
Mine timber, dry (lineal feet)	....	.....	322,692	82,000	101,720	506,412
Mine timber, green (lineal feet)	....	.....	.....	38,833	.....	38,833
Lagging (cords)	....	.....	.....	.....	.....	.....
Lagging (lineal feet)	....	.....	23,700	37,000	.....	60,700
Fence posts	14,046	8,355	5,137	20	105	27,663
Sawlogs (F.B.M.)	....	1,000	471,946	.....	.....	472,946
Round timber (pieces)	1,400	6,152	11,797	221	50,106	69,676
Round timber (lineal feet)	11,340	510	13,213	12,398	.....	37,461
Fence droppers (pieces)	....	.....	3,100	.....	.....	3,100
Fence droppers (cords)	....	.....	.....	.....	.....	.....
Telephone poles (pieces)	....	.....	.....	.....	.....	.....
Telephone poles (lineal feet)	....	.....	.....	.....	.....	.....
Railway ties, green (pieces)	....	.....	.....	.....	.....	.....

A portion of a winter cut of sawlogs

Part of Chisholm Sawmills cut on the Freeman River—1937-38

Provincial Lands.—The falling off in the demand for Alberta spruce lumber noted at the end of the preceding year, was directly reflected in a reduction in the manufacture of sawn lumber during the year ending March 31st, 1939. The total production of lumber for the year was over seventeen per cent less than for 1937-38. Lumber prices are still at depressed levels and there is little present indication of an increased demand either for export or for local needs. A large scale programme of construction is badly needed and would put new life into the lumber industry, but there appears little prospect of investment in such a programme at present, particularly in the present unsettled state of world affairs.

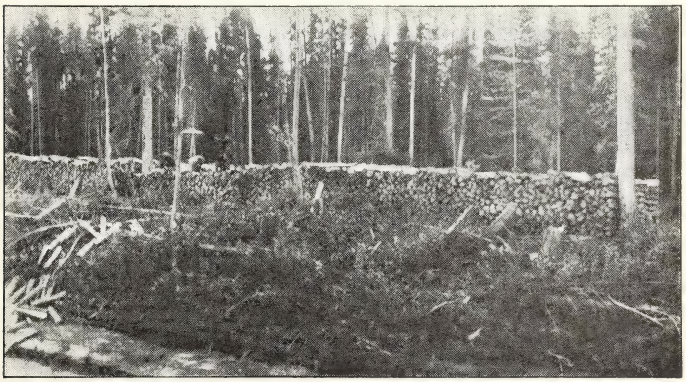
The manufacture of railway ties, however, showed a recovery from the previous year's recession with an increase over that year's figures of over 17½%. Contract prices on railway ties were unchanged.

In addition to the reduction of dues on lumber and on No. 2 ties, previously granted by order in council and extended to June 30th, 1939, the schedule of dues payable on railway ties was amended in March, 1939. The effect of the new schedule was a 1c per tie reduction of dues on all grades of ties cut on permit berths and under permits, and of ½c per tie reduction on ties cut from licence berths, whilst still maintaining the differential of 2c between No. 1 and No. 2 ties in the former class of operation and 1c spread in the latter class. The new schedule of dues on railway ties was made effective as at October 1st, 1938, so as to cover the whole of the 1938-39 season's operations.

At the same time, a relaxation of the regulations governing the issue of special timber permits was granted in respect of such operations in tie timber. In these cases the deposit is reduced from $25.00 to $10.00 and no further payment on account of dues is now required until the operations are completed or the ties sold.

The arrangement between this Department and the Bureau of Relief and Public Welfare under which permits are issued on behalf of needy settlers was continued. Operations were conducted on quite an extensive scale under such permits, particularly in the production of railway ties, and bridge and culvert material.

New regulations to authorize the disposal of tracts of timber in excess of two square miles in area, and also to make certain changes in the provisions governing the disposal of all timber berths, are still being given consideration, and it is hoped that they will be put in force during the coming year.



Cordwood pile 95 miles from McMurray

STATEMENT OF TIMBER OPERATIONS FOR 1938-39 ON PROVINCIAL LANDS IN THE EDMONTON DISTRICT AND IN THE CALGARY, PEACE RIVER AND LETHBRIDGE LAND AGENCIES

	Head Office, Edmonton District	Calgary Agency	Peace River Agency	Lethbridge Agency	Totals
(a) OPERATIONS ON LICENCE TIMBER BERTHS:					
Number of active operations	33	11	.....	.....	44
Lumber, feet, board measure	29,427,981	5,855,458	.....	.....	35,283,439
Railway ties	48,978	7,570	.....	.....	56,548
Round timber (including mine timber), lineal feet	8,956	1,737,158	.....	.....	1,746,114
Lath	1,452,000	.....	.....	.....	1,452,000
Cordwood, cords	.....	94	.....	.....	94
(b) OPERATIONS ON TIMBER PERMIT BERTHS:					
Number of active operations	189	27	.....	.....	216
Lumber, feet, board measure	51,203,028	4,064,583	.....	.....	55,267,611
Railway ties	853,413	34,664	.....	.....	888,077
Round timber (including mine timber), lineal feet	43,383	51,245	.....	.....	94,628
Lath	2,232,450	.....	.....	.....	2,232,450
Shingles	65,400	.....	.....	.....	65,400
Cordwood, cords	153	51	.....	.....	204
(c) OPERATIONS UNDER SPECIAL TIMBER PERMITS:					
(Sec. 40 (h) of the Timber Regulations)					
Number of active operations	173	45	.....	.....	218
Lumber, feet, board measure	3,757,028	839,961	.....	.....	4,596,989
Railway ties	138,339	33,925	.....	.....	172,264
Round timber (including mine timber), lineal feet	76,499	28,725	.....	.....	105,224
Shingles	226,250	35,000	.....	.....	261,250
Cordwood, cords	15	6½	.....	.....	21½
(d) TIMBER PERMITS ISSUED AUTHORIZING THE CUTTING OF MATERIAL SHOWN HEREUNDER:					
Number of permits issued	1,294	239	570	18	2,121
Lumber, in feet board measure	9,959,246	551,910	4,029,195	.....	14,540,351
Railway ties	34,897	300	2,460	.....	37,657
Piling, lineal feet	252,876	8,525	51,820	.....	313,221
Mining timber, lineal feet	204,860	171,672	.....	.....	376,532
Telegraph and telephone poles	16,678	2,740	300	.....	19,718
Building logs and culvert timber, lineal feet	59,037	7,100	280,844	.....	346,981
Fence rails	583,410	4,015	586,840	100	1,174,365
Fence posts	155,310	37,860	143,650	300	337,120
Roof poles	118,733	550	117,855	.....	237,138
Shingles	207,500	.....	22,000	.....	229,500
Shingle bolts, lath bolts, boxwood, in cords	62½	54	264	.....	380½
Fuel wood, cords	6,491	1,740	1,106	136	9,473
Lath	15,000	.....	.....	.....	15,000
Guard rails	5,700	.....	.....	.....	5,700

SUMMARY OF TIMBER OPERATIONS ON PROVINCIAL LANDS, 1938-39

	Licensed Timber Berths	Permit Timber Berths	Provincial Lands Timber Permits		Forest Reserve		Totals
			Special (Sec. 40h)	Other Permits	Timber Sales	Timber Permits	
Number of active operations	44	216	218	2,121	27	511	3,137
Lumber (feet, board measure)	35,283,439	55,267,611	4,596,989	14,540,351	5,306,244	472,946	115,467,580
Railway ties	56,548	888,077	172,264	37,657	23,860	.....	1,178,406
Piling (lineal feet)	.....	8,374	16,205	313,221	16,244	.....	354,044
Mine timber (lineal feet)	1,737,158	53,265	53,424	376,532	1,272,679	557,112	4,050,170
Lath	1,452,000	2,232,450	.....	15,000	.....	.....	3,699,450
Telegraph and telephone poles	.....	4	509	19,718	.....	.....	20,231
Building logs and culvert timber (lineal feet)	8,956	26,940	5,780	346,981	2,997	1,118,070	1,509,724
Fence rails	.....	.....	600	1,180,065	.....	.....	1,180,665
Fence posts	.....	852	1,672	337,120	55	16,697	356,396
Roof poles	.....	.....	.....	237,138	1,793	.....	238,931
Shingles	.....	65,400	261,250	229,500	.....	.....	556,150
Shingle bolts, lath bolts, boxwood, in cords	.....	.....	.....	380½	.....	.....	380½
Fuelwood (cords)	94	204	21½	9,473	142	4,899	14,833½
Number of inspection reports submitted by timber inspectors	.....	.....	.....	.....	.....	.....	2,086
Number of timber seizures made	.....	.....	.....	.....	.....	.....	142

Grazing

The successive years of drought in the southern part of the Province prior to the year under review rendered it imperative to reduce the normal carrying capacity of the different divisions within the forest reserves so as to prevent over-grazing and the consequences resulting therefrom. This policy has been amply justified by the results obtained in the recovery of the forage plants on the range land during the summer season of 1938, when a nearly normal rainfall was experienced.

Forage conditions, which were uncertain immediately prior to the opening of the season, eventually became exceptionally good as the result of a well distributed rainfall, and at the end of the grazing season they were again back to normal.

GRAZING STATEMENT—ALBERTA FOREST SERVICE, 1938-39

Forest	No. of Permits	No. of Horses	No. of Cattle	No. of Sheep
Cypress Hills	50	560	2,029	.....
Crowsnest-Bow River	270	1,543	19,925	4,791
Clearwater	51	223	252	.....
Brazeau-Athabaska	66	698	74	.....
TOTALS	437	3,024	22,280	4,791

COMPARATIVE STATEMENT, GRAZING—ALBERTA FOREST SERVICE

Grazing year	1931	1932	1933	1934	1935	1936	1937	1938	Totals	Average
No. of permits	456	606	493	517	533	497	529	437	4,068	509
No. of cattle	15,041	20,086	20,230	22,557	25,097	23,407	18,921	22,280	167,619	20,953
No. of horses	3,417	3,377	3,185	2,541	2,207	2,441	3,418	3,024	23,610	2,952
No. of sheep	4,379	7,465	6,705	3,078	4,114	5,443	3,174	4,791	39,149	4,893

The grazing regulations allow adaptation to changing conditions such as the alloting of grazing capacities, period of use, manner of utilization, class of stock and other related matters, which are all within the scope of range management within the forest reserves, and an endeavor is being made to carry out the policies set out so as not to over-graze and destroy the forage plants, but to utilize them and at the same time ensure their continuance.

Improvements

The period under review was quite favourable for the carrying out of improvement work, especially in the forest reserves where fires did not greatly interfere with the regular routine work of the ranger staff.

Throughout the season all existing improvements were maintained, although not up to the desired conditions. Trails and roads were kept open and lines of communication were maintained in working order.

The favourable fire season was a great help as the forest reserve staffs were not engaged in fire-fighting to a great extent and were therefore able to devote a great deal of time to maintenance work. They were also greatly assisted in this work by trainees of the Youth Forestry Training Project and as a result most of our existing improvements are in better shape than they have been for years.

IMPROVEMENT STATEMENT

NEW CONSTRUCTION PROJECTS:

Forest	Houses	Garages, Sheds, etc.	Fences	Fields (breaking in acres)	Water Supply Systems	Barns and Stables	Telephones (miles)	Corrals	Bridges	Look-out Towers	Trails (Miles)	Cabins	Fireguard Roads (Miles)	Tourist Stoves	Miscellaneous
Cypress Hills	....	....	....	....	2	....	....	....	....	....	....	....	½	2	2
Crowsnest	....	1	....	....	....	....	....	1	....	....	....	....	10	....	....
Bow River	....	1	1	....	....	2	30	....	....	....	15	2	....	....	....
Clearwater	1	1	....	....	....	....	....	1	....	....	39	2	....	....	1
Brazeau	....	....	....	....	....	....	24	1	....	....	....	1	....	....	....
Athabaska	1	....	....	....	....	....	....	....	....	....	....	....	....	....	1
TOTALS	2	3	1	....	2	2	54	3	....	....	54	5	10½	2	4

MAINTENANCE PROJECTS:

Forest	Houses	Cabins	Barns and Stables	Telephones (Miles)	Trails (Miles)	Roads (Miles)	Fences	Corrals	Water Supply Systems	Garages, Sheds, etc.	Look-out Towers and Cabins	Grounds	Hay Meadows & Pastures	Ferries	Miscellaneous
Cypress Hills	1	1	1	13	....	26	2	....	1	2	....	1	....	....	....
Crowsnest	7	4	4	161½	290	146¾	15	....	2	5	....	9	3	....	6
Bow River	8	11	11	290	799¾	86½	19	7	3	10	....	17	5	....	5
Clearwater	3	13	....	180½	793¾	19½	5	1	1	....	....	....	1	1	1
Brazeau	8	7	2	146½	282½	....	9	1	1	2	1	4	1	....	....
Athabaska	3	11	1	62	422½	51	8	1	2	2	....	2	....	....	1
TOTALS	30	47	19	853½	2,588½	329¾	58	10	10	21	1	33	10	1	13

IMPROVEMENTS—STATEMENT OF MAN-DAYS WORKED

NEW CONSTRUCTION PROJECTS:

Forest	Houses	Garages, Sheds, etc.	Fences	Fields (breaking)	Water Supplies	Telephones	Corrals	Barns and Stables	Bridges	Look-out Towers	Trails	Cabins	Fireguard Roads	Tourist Stoves	Miscellaneous
Cypress Hills	....	....	....	....	31	....	....	....	....	....	....	....	7	14	28½
Crowesnest	....	64½	....	....	....	....	10	....	....	....	....	....	30	....	....
Bow River	....	9½	....	....	....	66	....	112½	....	....	2	44½	....	....	....
Clearwater	10	....	....	....	....	....	5	....	....	....	67	96	....	....	2
Brazeau	....	....	....	....	....	112½	6	....	....	....	....	12	....	....	....
Athabaska	29	....	....	....	....	....	....	....	....	....	....	....	....	....	61½
TOTALS	39	74	....	....	31	178½	21	112½	....	....	69	152½	37	14	92

MAINTENANCE PROJECTS:

Forest	Houses	Cabins	Barns and Stables	Telephones	Trails	Roads	Fences	Corrals	Water Supplies	Garages, Sheds, Etc.	Look-out Towers and Cabins	Grounds	Hay Meadows & Pastures	Ferries	Miscellaneous
Cypress Hills	16½	13½	3	34	....	23½	2	....	3	7½	....	12½	....	....	....
Crowsnest	28½	17½	14	187½	126½	287	123	....	1½	5½	....	41½	27	....	53
Bow River	106½	47	18½	364½	570½	213	201½	22	7	27½	....	74½	9½	....	16
Clearwater	3	68	....	192	324	7	54	2	2	....	....	....	12	22	5
Brazeau	33½	30	22½	137	327½	....	60½	2	4	3	19	39	2	....	....
Athabaska	1½	62	4	74	294	31	19½	1	1½	12	....	3½	....	....	2
TOTALS	189½	238	62	989	1,642½	561½	460½	27	19	55½	19	171	50½	22	76

Publicity

It has been repeatedly emphasized in previous reports that forest protection is largely a matter of public responsibility. It is, however, regrettable that a great number of our citizens do not recognize or evade this responsibility, or they do not realize the benefit of forest cover. The most effective way of bringing them to realize the responsibility is by means of publicity.

In years past we have found that the most effective way of educating the public to their responsibility is first through the schools by means of illustrated pamphlets and booklets, and the donation of small prizes for essays on trees and forestry, and by articles in the press and addresses given over the air.

A publicity campaign throughout the fire season has produced satisfactory results in years past, but in order to be effective, must be sustained through each successive season in order to produce enduring results, but owing to shortage of staff this has not been possible, and our publicity has been limited to a few brief messages over the air, and articles in the local papers.

Nursery and Tree Distribution

Nursery.—The growing of trees from seed has been carried out at Oliver as in previous years, and the young transplants have been forwarded to the subsidiary nurseries at Fort Saskatchewan and Lethbridge, where they have been planted out so as to establish a good root system for transplanting in their permanent sites.

Owing to lack of an artificial watering system at Oliver the same high degree of success was not obtained as during the first several years the nursery was in operation.

Although very good success is obtained during years of normal rain, the source of moisture is not dependable and during prolonged dry spells such as have occurred during the past two years, the loss of young transplants has been very heavy. This condition exists both at Oliver and at Fort Saskatchewan, but not at Lethbridge where water for irrigation is available.

The experience we have had during the past two dry seasons has shown the necessity of an overhead sprinkling system at Oliver where the majority of our nursery stock is produced.

Youth Forestry Training Project

As a continuation of the Youth Forestry Training Project entered into jointly by the Dominion and the Province, designed to provide unemployed and needy young men with training and experience in elementary forestry, a great number of applicants were interviewed and sixty were selected.

The camp on the Highwood river eighty-five miles south-west of Calgary was utilized as a base camp for thirty-five of these youths, and twenty-five were distributed as follows:

Crowsnest Forest	12
Clearwater Forest	4
Brazeau-Athabaska Forest	9

Experience was provided those in the camps in both new construction and maintenance projects useful to the forest service in the vicinity of the camp and on trails and telephone lines in the districts adjacent.

The trainees sent out to the different reserves were placed under the direction of rangers as assistants where they performed a great deal of useful work in maintaining existing improvements.

A thorough grounding in practical work was given in order to fit the young men, both in the camp and in the different districts, for possible employment with the Forest Service as assistant rangers, patrolmen and lookoutmen and in the lumbering industry generally.

MILEAGE TRAVELLED BY EMPLOYEES OF THE ALBERTA FOREST SERVICE

FISCAL YEAR 1938-39

Divisions	Foot	Saddle	Driving	Speeder	Auto	Canoe	Rowboat	Motorboat	Plane	Railway	Other	Total
Northern Alberta Forest District	25,788½	41,808½	9,770½	26,118	159,278½	1,198	202	4,879½	1,615	12,580	1,294	284,532½
Crowsnest-Bow River Forest	3,538	31,210	3,938	.....	51,160	.....	.....	12	.....	72	.....	89,930
Clearwater Forest	3,158	10,789	3,346	1,128	12,332	.....	.....	10	.....	.....	.....	30,763
Brazeau-Athabaska Forest	3,830	18,201	320	4,184	4,098	.....	.....	.....	.....	1,948	.....	32,581
Cypress Hills Forest	20	1,890	.....	.....	820	.....	.....	.....	.....	.....	.....	2,730
TOTALS	36,334½	103,898½	17,374½	31,430	227,688½	1,198	202	4,901½	1,615	14,600	1,294	440,536½

Number of inspections made during 1938—730.

Technical Division

REPORT OF THE SUPERINTENDENT OF THE TECHNICAL DIVISION, T. W. DALKIN

Notifications (Land Patents).—Over half a million acres of land were patented during the fiscal year ending March 31, 1939, the exact acreage figures being 517,435.896, which were covered by 2,874 notifications. These figures represent the greatest area that has been patented by the Crown in a single year since the transfer of the natural resources to the Province. The total number of notifications includes 42 which were issued affecting areas in subdivision plans.

The details are as follows:

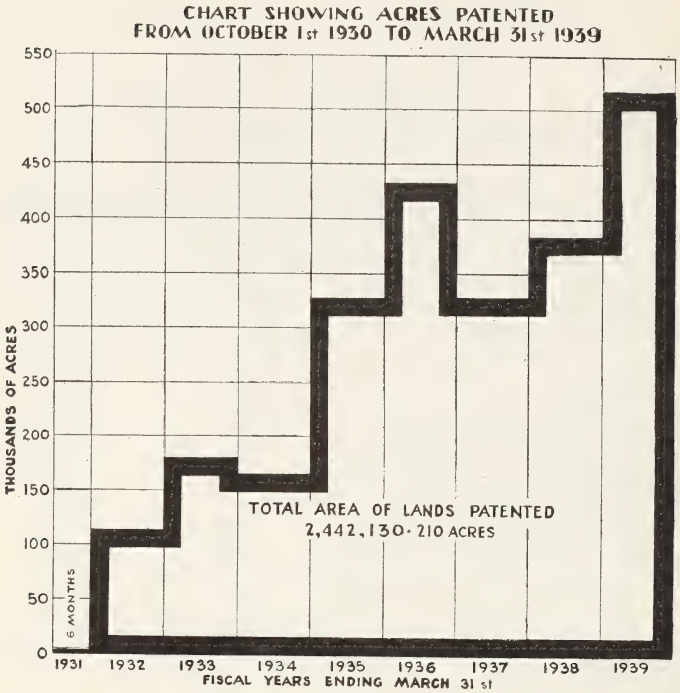
Classification	Notifications	Area (Acres)
Homesteads	1,741	362,757.321
Second homesteads	533	80,795.813
Soldier grants	52	7,875.01
School lands' sales	378	55,215.502
Sales (including lots in subdivisions)	94	2,665.72
Special grants	49	599.32
School lands' grants	12	43.34
Pre-emptions	2	317.00
North-west half-breed grants	1	240.10
Exchange of lands	4	6,820.05
Release of habendum clauses	3	89.03
Release of licence of occupation	1	.....
Lacombe & Northwestern Railway, free grant	1	1.88
Canadian National Railways' sales	3	15.81
TOTALS	2,874	517,435.896

Details of Sales in Subdivisions	Notifications	No. of Lots	No. of Blocks
Walsh, (Plan 3644 B)	2	3	....
Coleman, (Plan 6808 CU)	2	2	....
Town of Barnwell, (Plan 3105Y)	2	5	....
Canmore	11	12	....
High River, (Plan 5830 W)	1	....	1
Bellevue, (Plan 7134 AI)	1	2	....
Peace River Landing Settlement 5617 BK	1	5	....
Avion, (Plan 1255 AI)	1	8	....
McMurray Settlement, (Plan 616 AO)	1	1	....
Passburg Townsite, (Plan 185 AA)	1	3	....
Jarvie	6	8	....
Lac La Biche, (Plan 4313 BF)	1	1	....
Smith Landing Settlement	1	1	....
Atikamisis Lake Settlement	1	1	....
Carbondale, (Plan 232 AI)	1	1	....
Orion, (Plan 7415 BO)	1	1	....
Maple Leaf, (Plan 2107 AA)	1	1	....
School lands' sales:			
McLennan Townsite, (Plan 1394 EU)	7	13	....
TOTALS	42	68	1

Homestead Entries.—During the year, 1,277 homestead entries, 73 second homestead entries and 3 soldier grant entries were checked as to acreage and exceptions were made whenever necessary for railway rights of way, roadways, power transmission lines, pipe-lines and other previously alienated parcels of land. Where homesteads were affected by rivers the fordableness of same was checked before entries were granted to the land on both sides of the water.

Lands Transferred from the Dominion to the Province:

(1) *Wawaskesy National Park.*—In accordance with chapter 35 of the statutes of 1938 as assented to on the 24th of June, 1938, this national park was abolished and transferred to the jurisdiction of this Department. The park comprises those portions of townships 17 and 18 in range 3, and township 17, range 4, lying north and west of the Saskatchewan River, and township 18,



range 4, all west of the 4th meridian. This area was established as a national park on the 31st of May, 1933, P.C. No. 1134, with the intention of its becoming developed as a second reserve to insure the preservation of the prong-horned antelope. It was never considered necessary to fence or develop this area as the Nemiscam Antelope Park, also in Southern Alberta, was considered adequate. At the Legislative Assembly of the Province of Alberta in 1935, a resolution was passed by the provincial authorities which requested that the area either be fenced and developed as a park or returned to the Province. As the area was never developed as an antelope park it was accordingly transferred to the Province under Section 14 of the Agreement respecting the transfer of the resources.

(2) *Elk Island Park and Cooking Lake Forest Reserve.*—Under the same chapter certain portions of sections 7, 8, 9, 10, 14, 15, 16 and 18 of township 53, range 20, west of the 4th meridian, lying to the north of the northerly boundary of the main provincial highway and formerly within the boundaries of Cooking Lake Forest Reserve, were added to Elk Island Park. These areas were transferred to the Dominion Government by the Province by Order in council, No. 933/36 dated the 30th of June, 1936. In return for these areas amounting to 148.77 acres, more or less, chapter 35 provides for the transfer to the Province of portions of sections 10, 14 and 15 of township 53, range 20, west of the 4th meridian, lying to the south of the northerly boundary of the main highway within the Elk Island National Park. The transfer of these areas became necessary in order to establish the north boundary of the main highway as the south boundary of Elk Island Park and the south boundary of the main highway as the north boundary of Cooking Lake Forest Reserve.

(3) *Admiralty and Ordnance Lands.*—Portion of section 23, township 8, range 3, west of the 4th meridian, south of Elk Water Lake containing 395.27 acres, more or less, together with the mines and minerals, located in the Cypress Hills Forest Reserve, was transferred from the Dominion to the Province by Order in council, P.C. No. 1764 dated the 26th day of July, 1938.

(4) *Soldier Settlement Board Lands.*—A large number of parcels of lands which were retained by Canada and administered under the Soldier Settlement Act were transferred to the Province by the following orders in council:

P.C. No. 873 dated the 25th of April, 1938.
P.C. No. 1523 dated the 6th of July, 1938.
P.C. No. 1702 dated the 20th of July, 1938.

Provincial Parks.—Applications were received from the Provincial Parks Board to establish certain areas as provincial parks. These applications were given favourable consideration with the result that the following orders in council were passed on the 23rd of August, 1938, and the parks were established:

Order in council No. 1020/38 established a provincial park on those portions of legal subdivisions 15 and 16 of section 35 lying to the north and east of Little Smoky River in township 75, range 22, west of the 5th meridian, and also those portions of legal subdivisions 1 and 2 of section 2 lying to the south and east of the right bank of the Little Smoky River in township 76, range 22, west of the 5th meridian. This park will accommodate visitors from Falher and the surrounding district.

The same order in council established another park on portions of the north-east quarter of legal subdivision 1 of section 1, township 74, range 20, west of the 5th meridian. This park is located south-west of Aggie.

Addition to Janvier Indian Reserve, No. 194.—Reference is made in last year's report to an application from the Department of Indian Affairs for an addition to Janvier Indian Reserve. At the time of the transfer of the natural resources the complete area to which the Indians were entitled under treaty was not laid out for them. A survey was made by the Department of Indian Affairs of an area containing 514 acres in township 80, range 5, west of the 4th meridian. This land completes the acreage to which the Indians are entitled, and on the 5th of January, 1939, Order in council No. 7/39 was passed adding these lands to the Janvier Indian Reserve to be administered by the Dominion of Canada.

Cypress Hills Forest Reserve.—Certain areas lying within the boundaries of the Cypress Hills Forest Reserve are patented lands and it was deemed expedient, with a view to proper administration, that these areas should be withdrawn from the reserve. Orders in council were therefore passed—No. 1549/38 on 13th of December, 1938 and No. 247/39 on 1st March, 1939—withdrawing patented areas amounting to 1,880 acres more or less in townships 7 and 8, range 1, west of the 4th meridian, and in township 8, ranges 2 and 3, west of the 4th meridian.

River Lot 12, *Peace River Landing Settlement.*—Portion of River Lot 12, Peace River Landing Settlement, together with various Dominion Government buildings erected thereon, was transferred to the jurisdiction of this Department under the Natural Resources Agreement. Representations were made by the Department of Public Works to have the buildings and the land upon which they are erected transferred to their jurisdiction, with the result that an order in council was passed on the 29th of June, 1938, authorizing the transfer of the buildings and the area of 3.84 acres, more or less, reserving mines and minerals, to the Department of Public Works.

Licences of Occupation, Irrigation Schemes.—Representations were made to this Department by the Director of Water Resources regarding the construction of dam sites, rights of way and works, and the flooding of certain areas under

the Dominion Prairie Farm Rehabilitation Act. It was pointed out that the settlers benefiting from such schemes were having a struggle to make a living and it was deemed expedient to pass an order in council on the 23rd of August, 1938, No. 1017/38, waiving all departmental fees in connection with such schemes, with the result that several licences of occupation were issued free of charge to individuals covering small areas on provincial lands.

Licences of occupation were issued for logging roads in township 50, ranges 10 and 11, west of the 5th meridian, and in townships 51, 52 and 53, range 10, west of the 5th meridian, in favour of the Swanson Lumber Company, and in township 47, ranges 4 and 5, west of the 5th meridian, to the D. R. Fraser Company, Limited.

Wharf-site Sylvan Lake.—Considerable correspondence with the Dominion Government, Department of Public Works, led to the passing of Order in council No. 1208/38 dated the 27th of September, 1938, whereby an area of 2.27 acres, more or less, was set apart to be used for the sole purpose of constructing, erecting and maintaining a wharf-site. A pier has now been erected by the Dominion Government at this popular resort and the area reserved during pleasure.

Ma-me-o Beach, Pigeon Lake.—The Dominion Government has erected a pier at this location and an area of 1.29 acres, more or less, has been reserved unto the Dominion Government by authority of Order in council, No. 1551/38.

An application was received from the Department of Transport, Ottawa, for a power line right of way over the north-east quarter of section 29, township 12, range 6, west of the 4th meridian, to the Dominion Radio Range Transmitter site located on section 20, township 12, range 6, west of the 4th meridian, serving Trans-Canada Airways at Medicine Hat. Order in council, No. 1207/38, dated the 27th of September, 1938 was passed and a licence of occupation issued in favour of the Dominion Government on the 28th of September, 1938, for such time as the land may be required for power line right of way purposes.

Other applications were received on behalf of the Calgary Power Company and licences of occupation issued.

Shipyard-site near McMurray.—A lease was issued in favour of the Governor and Company of Adventurers of England trading into Hudson's Bay for a shipyard-site containing 15.32 acres, more or less, in the north-east quarter of section 31, township 90, range 9, west of the 4th meridian.

Special Areas.—The transfer of the jurisdiction of the Special Areas to this Department has occupied practically the whole time of two members from this staff. Many types of plans have been prepared for the Board of all the areas showing the public lands and lands offered for sale in order that a bird's-eye view of the situation could be obtained. Registers are now being compiled showing the disposition of the lands and during the fiscal year about 3,000 titles were received covering about 7,000 parcels of land. There appears to be a tremendous amount of work to be done in connection with the records of the Special Areas, before full and complete information can be obtained covering all the lands in this section of the Province.

Exchange of Lands.—Several applications have been received from settlers for the exchange of their lands for Crown lands. In some cases it was apparent that the proposed exchange would effect a consolidation of the applicant's holdings and assist him to operate his lands on a more economic basis. In other cases an exchange has been requested in order to obtain water and better soil conditions or to be nearer to a market road or school.

In order to stabilize the leases already granted to the Credit Foncier Franco-Canadien Company, this company transferred lands in the Special Areas amount-

ing to 6,493.95 acres, more or less, to this Department. In exchange for these lands the Crown issued a notification in favour of the company to the survey rights of certain provincial lands in township 23, range 8, west of the 4th meridian, containing 6,406 acres, more or less.

Snow Fences.—Several parcels of land have been sold to the Canadian National Railways for the purpose of erecting snow fences along the railway right of way and notifications have issued accordingly.

Metis Colonies.—Representations were made to this Department by the Department of Health whereby it was considered advisable that certain areas of unoccupied provincial lands should be set aside for the Metis population as provided for under section 6 of the Metis Population Betterment Act, chapter 6 of the statutes of the second session of the Legislative Assembly of 1938. During the fiscal year the following orders in council were passed dedicating certain areas deemed suitable for the settlement of members of any Metis association:

Colony, No. 6: Order in council, No. 1603/38, dated 21st of December, 1938, was passed setting aside the following area: All of townships 55 and 56, range 20, west of the 5th meridian; all of township 55, range 21, west of the 5th meridian; all that portion of township 55, range 22, west of the 5th meridian, east of the Athabaska River; all that portion of township 56, ranges 21 and 22, west of the 5th meridian, east of the Athabaska River; all that portion of township 57, range 21, west of the 5th meridian, east of the Athabaska River; all that portion of township 58, range 21, west of the 5th meridian, east of the Athabaska River. The south boundary of this colony is located about twelve miles north of Marlboro and adjoins the right bank of the Athabaska River.

Colony, No. 3: Order in council, No. 1602/38, dated the 21st of December, 1938, was passed setting aside the following area: All that portion of township 79, range 10, west of the 5th meridian, not covered by the waters of Utikuma Lake; all that portion of township 79, range 11, west of the 5th meridian not covered by the waters of Utikuma Lake and Utikumisis Lake and not included in the Indian Reserve; all that portion of township 80, range 11, west of the 5th meridian, lying to the south and west of and not covered by the waters of Utikumisis Lake, being approximately sections 4, 5, 6 and 7 of the said township; and all of townships 78, 79 and 80, range 12, west of the 5th meridian. This area comprises almost five townships of surveyed and unsurveyed lands to the west of and adjoining the shores of Utikuma Lake. At a later date, on the 14th of March, 1939, another Order in council, No. 302/39 was passed providing for the addition to the above area of small portions in township 80, range 11, west of the 5th meridian.

Colony, No. 9: Order in council, No. 1605/38, dated the 21st of December, 1938 was passed setting aside the following areas: The east half of township 66, range 1, west of the 4th meridian; all that portion of section 14, township 65, range 1, west of the 4th meridian, not covered by the waters of Cold Lake and not including the island at the mouth of Matenau River. This colony lies north of Cold Lake.

Colony, No. 8A: Order in council, No. 1604/38, dated the 21st of December, 1938 was passed setting aside the following area: All of township 66 and the north half of township 65, range 7, west of the 4th meridian; all of township 66 and the north half of township 65, range 8, west of the 4th meridian. This area is located about thirty miles east of Lac La Biche.

Colony, No. 7: Order in council, No. 379/39, dated the 29th of March, 1939 was passed setting aside the following area: All of township 62, range 14, west of the 4th meridian, excepting thereout sections 35 and 36 of the said township; all of township 62, range 15, west of the 4th meridian; all of township 63,

range 14, west of the 4th meridian, excepting thereout all of sections 1, 12, 13, 24, 25 and 36 of the said township; all of township 63, range 15, west of the 4th meridian. This area comprises about four townships and is located about 20 miles south of Lac La Biche.

New Surveys.—Saskatchewan-Alberta boundary: This survey was started in March of last year and a copy of the completed plan of survey dated the 6th of January, 1939, approved by the Saskatchewan-Alberta Boundary Commission is now recorded in this Division.

The Alberta-Saskatchewan Boundary Act, covered by Bill, No. 16 of 1939, passed by the Alberta Legislative Assembly, approved and confirmed the plan of this boundary survey and the report of the Commission. The boundary line is marked upon the ground by this survey, and is approved and confirmed and declared to be the true inter-provincial boundary. This Act was passed subject to the passing of a similar Act by the Province of Saskatchewan.

Township 70, range 6, west of the 6th meridian: Corrections were made in the survey of this township in the spring of 1938 involving replacing of certain corner monuments.

Section 18, township 7, range 28, west of the 4th meridian: A re-traverse of the Old Man River at this location was made, necessitated by the change of the course of the river.

South-east quarter of section 35, township 24, range 2, west of the 5th meridian: A re-traverse of the Bow River at this location was made as it was apparent that the old original Dominion Government survey was in error.

Approved plans showing the re-survey of the Red Willow River in the south half of section 16 and south half of section 21, township 70, range 10, west of the 6th meridian were received.

Approved plans were also received showing the re-survey of parts of sections 5 and 8, of township 80, range 3, west of the 6th meridian. This re-survey was necessary due to the fact that the old Dominion Government survey was found to be in error.

Arrangements were made with Ottawa for the preparation of new plans of survey of townships 69 and 70, range 27, west of the 5th meridian, township 70, range 6, west of the 6th meridian and townships 76 and 77, ranges 18 and 19, west of the 5th meridian. This latter survey was necessary on account of the recession of the waters of Winagami Lake.

New Maps.—Map of Alberta, scale 17½ miles to the inch, was prepared showing the available school lands lithographed in black. This map was published in connection with the scheme of granting cultivation and grazing priveleges to settlers in the Special Areas on the available school lands outside of these areas.

Turner Valley: A lithographed map was prepared of this area and published in October, 1938 showing the location of the producing oil and gas naphtha wells. The uncompleted and abandoned wells were also shown.

Special Areas: A lithographed map was published showing the cultivation and grazing lands. A large number of individual maps of each of the Special Areas was also published.

Natural Resources Map: On account of the growing demand for a map showing the natural resources of Alberta it was deemed expedient that there should be no further delay in designing and drafting this map. Splendid progress has been made in this regard and it is anticipated that this new map will be available to the public at an early date. The map has been designed in order to meet all general requirements because applications have not only been received from the school rooms of the Province but also from many other sources ranging from

prospectors to large organizations which demonstrated the interest shown in the development of the natural resources of Alberta.

General.—During the fiscal year this Division has been called upon to supply a large number of maps, plans and sketches covering a variety of subjects not only for the various Divisions of this Department but also for other Government Departments including the Petroleum and Natural Gas Conservation Board. Of particular interest was the material which was prepared for the Commission which visited England in connection with the oil industry of the Province. This material included four large generalized cross sections of the Turner Valley structure and other maps of the Province showing all the oil and gas locations. Maps', plans' and legal metes' and bounds' descriptions, together with areas, were prepared in connection with the innumerable applications for provincial lands to be acquired by sale or lease under the various regulations. Among the interesting applications received were those from Ducks Unlimited, a private non-profitable organization incorporated under the laws of Canada for the purpose of restoring the wild duck breeding grounds of Western Canada. At the present time Ducks Unlimited is interested in the Ministik Lake and Many Islands Lake Bird Sanctuaries.

Work was continued on the set of plan records showing the detailed disposition of each township in the Province. Ranges 1 to 15, west of the 4th meridian, have been completed.

The stock of maps and plans which is carried by the Technical Division is becoming known far and wide. Increasing business is being done in the disposal of maps not only through the various Government Departments and to the general public over the counter, but also by mail to many distant points.

The fiscal year under review has been one of unusual activity in this Division.

Accounting Division

REPORT OF THE ACCOUNTANT, I. N. McKINNON

A surplus of $1,155,088.15 on income account was shown for the period ending March 31, 1939, an increase of $70,496.37 over the previous year. Revenue for the year was the highest in the history of the Department, amounting to $1,864,712.75 as against $1,606,156.50 for the previous fiscal year. Main increases and decreases were as follows:

	Increase	Decrease
Grazing permits, fees, rentals, etc.	.....	$ 21,989.03
Timber fees, dues, rentals, etc.	.....	61,598.62
Coal rentals	.....	8,219.42
Coal royalties	.....	15,156.33
Petroleum and Natural Gas:		
Fees, rentals, etc.	$ 87,605.95	.....
Royalties	145,186.90	.....
School lands sales interest	16,377.98	.....
School lands miscellaneous	107,791.52	.....
Miscellaneous	8,557.30	.....
Net revenue increase	.....	258,556.25
	$365,519.65	$365,519.65

Particulars of revenue by branches will be found in Statement "B". Cash received from all sources amounted to $2,125,754.87 as compared with $1,789,276.20 for the previous year.

Total expenditure amounted to $709,624.60, an increase of $188,059.88, mainly accounted for by a rise in fire fighting costs of $156,880.28 and also by the administration cost of the Special Areas Board, transferred to the Department in April, 1938, amounting to $21,702.97.

INDEX TO STATEMENTS

A.—Statement of Cash Receipts from all Sources.
B.—Statement of Income Revenue by Branches.
C.—Statement of Cash Receipts, School Lands Branch.
D.—School Lands Trust Fund Balance Sheet.
E.—Statement of Alberta School Lands Sales Revenue Account.
F.—Statement of Collections on Tax Recovery Lands.
G.—Statement of Homestead Entries Granted.
H.—Special Areas Board Statement of Receipts and Payments.

STATEMENT A.

STATEMENT OF CASH RECEIPTS FROM ALL SOURCES

From April 1, 1938 to March 31, 1939

	Gross Receipts	Refunds	Net Revenue
INCOME ACCOUNT:			
Lands and Grazing Branch:			
Cancellation fees	$ 880.00	$ 78.00	$ 802.00
Casual	6,708.70	33.20	6,675.50
Cultivation fees, rentals, etc.	9,263.13	1,155.56	8,107.57
Filing authority fees	908.00	4.00	904.00
Fur farm fees and rentals	129.90	.....	129.90
General sales interest	1,795.20	.....	1,795.20
Grazing permits, fees, rentals, etc.	130,575.25	11,724.22	118,851.03
Hay permits, fees, dues, etc.	4,221.79	162.25	4,059.54
Homestead fees	13,450.00	70.00	13,380.00
Improvement collection fees	2,401.27	.....	2,401.27
Surface rentals	2,309.62	.....	2,309.62
Timber Branch:			
Casual	2,401.88	.75	2,401.13
Timber fees, dues, rentals, etc.	301,237.29	5,204.42	296,032.87
Mining Lands Branch:			
Casual	11,095.45	55.20	11,040.25
Coal fees, rentals, etc.	107,910.58	1,145.31	106,765.27
Coal Mines Act sundry revenue	4,759.18	36.80	4,722.38
Coal royalties	143,175.13	104.35	143,070.78
Petroleum and Natural Gas:			
Fees, rentals, etc.	375,929.02	3,479.03	372,449.99
Royalties	394,453.43	.....	394,453.43
School Lands Branch:			
Interest on sales	58,162.64	33.60	58,129.04
Miscellaneous	318,413.53	18,345.46	300,068.07
Miscellaneous:			
Casual	7,668.27	163.35	7,504.92
Reimbursement of salaries and expenses	301.12	.....	301.12
Tax recovery office fees	556.98	5.00	551.98
Services and supplies	8,218.39	412.50	7,805.89
TOTAL INCOME ACCOUNT	$1,906,925.75	$ 42,213.00	$1,864,712.75
CAPITAL ACCOUNT:			
Land sales principal	8,655.20	61.27	8,593.93
TOTAL INCOME AND CAPITAL ACCOUNTS	$1,915,580.95	$ 42,274.27	$1,873,306.68
UNAPPLIED RECEIPTS CARRIED FORWARD: (Subject to refund)			
Improvements	12,545.78	5,383.36	7,162.42
Suspense	38,520.74	.....	38,520.74
School lands cultivation crop shares	77.48	.....	77.48
Land patents cultivation crop shares	20.06	.....	20.06
Grazing permits, fees, rentals, etc.	4,388.11	.....	4,388.11
	$1,971,133.12	$ 47,657.63	$1,923,475.49
TRUST ACCOUNTS:			
School lands trust fund	86,322.26		
Special Areas trust account	68,299.49		
	$2,125,754.87		

STATEMENT B.

STATEMENT OF INCOME REVENUE BY BRANCHES FOR FISCAL YEARS ENDING

March 31, 1938 and March 31, 1939

	Fiscal year ending March 31, 1938	Fiscal year ending March 31, 1939
Lands and Grazing Branch	$ 181,412.38	$ 159,415.63
Timber Branch	360,380.18	298,434.00
Mining Lands Branch	818,609.83	1,032,502.10
School Lands Branch	234,027.61	358,197.11
Miscellaneous	11,726.50	16,163.91
	$1,606,156.50	$1,864,712.75

STATEMENT C.

SCHOOL LANDS BRANCH
STATEMENT OF CASH RECEIPTS
April 1, 1938 to March 31, 1939

	Receipts	Refunds	Net Revenue
INCOME ACCOUNT:			
Sales: interest	$ 58,162.64	$ 33.60	$ 58,129.04
Cultivation fees, rentals, etc.	99,473.87	17,857.86	81,616.01
Miscellaneous leases	353.87	.....	353.87
Timber permits, fees, dues, etc.	18,117.22	212.93	17,904.29
Grazing fees, rentals, etc.	15,696.85	22.37	15,674.48
Hay fees, dues, etc.	1,314.57	85.30	1,229.27
Coal fees, rentals, etc.	4,710.98	45.00	4,665.98
Coal mining royalties	9,270.23	.....	9,270.23
Petroleum and natural gas: fees, rentals, etc.	40,857.42	122.00	40,735.42
Petroleum and natural gas royalties	128,312.33	.....	128,312.33
Miscellaneous	306.19	.....	306.19
	$ 376,576.17	$ 18,379.06	$ 358,197.11
TRUST ACCOUNT:			
School lands sales principal	86,322.26	.....	86,322.26
TOTAL INCOME AND TRUST ACCOUNTS	$ 462,898.43	$ 18,379.06	$ 444,519.37

STATEMENT D.

ALBERTA SCHOOL LANDS TRUST FUND
BALANCE SHEET—March 31, 1939

ASSETS			
Cash in bank and on hand		$ 30,199.34	
Investments:			
Dominion of Canada debentures	$10,056,394.10		
Accrued interest	98.15		
		10,056,492.25	
Due from Provincial Treasurer		1.43	
Accounts Receivable:			
Undue principal	$ 1,258,411.33		
Arrears principal	868,564.10		
		2,126,975.43	
			$12,213,668.45
LIABILITIES			
Alberta School Lands Trust Fund		$12,213,668.45	$12,213,668.45

STATEMENT E.

ALBERTA SCHOOL LANDS SALES
REVENUE ACCOUNT
April 1, 1938 to March 31, 1939

Arrears interest as at March 31, 1938	$1,509,260.20	
Interest charged	383,388.32	
Interest on reinstated accounts	273,207.74	
Interest revenue		$ 58,129.04
Interest on cancelled sales written off		68,781.93
Amounts transferred from cultivation leases held on reinstated sales		51,179.47
Interest reductions granted by School Land Board		1,090,421.03
Arrears interest as at March 31, 1939		897,344.79
	$2,165,856.26	$2,165,856.26

STATEMENT F.

STATEMENT OF COLLECTIONS ON TAX RECOVERY LANDS
April 1, 1938 to March 31, 1939

Grazing permits	$ 3,230.06
Grazing rentals	3,756.04
Improvements	70.00
Sales principal	434.11
Sales interest	8.37
Mineral surface rentals	16.18
Cultivation rentals	1,342.02
Cultivation crop shares	4,959.48
Miscellaneous rentals	66.04
Miscellaneous use permits	14.39
	$ 13,896.69
Office fees	551.98
	$ 14,448.67

STATEMENT G.

HOMESTEAD ENTRIES GRANTED
April 1, 1938 to March 31, 1939

	Homesteads	Second Homesteads	Soldier Grants	Total	Entries to Women
Edmonton Land Agency	626	40	2	668	244
Calgary Land Agency	3	3	1	7	1
Lethbridge Land Agency	.....	.....	.....	.....	.....
Peace River Land Agency	648	30	.....	678	268
	1,277	73	3	1,353	513

GOVERNMENT OF THE PROVINCE OF ALBERTA
SPECIAL AREAS BOARD
STATEMENT OF RECEIPTS AND PAYMENTS
For the Year Ended March 31, 1939

RECEIPTS	Berry Creek Area	Bow West Area	Neutral Hills Area	Sounding Creek Area	Sullivan Lake Area	Tilley East Area		Total
Funds transferred from Special Municipal Areas Board	.....	.....	.....	.....	.....	.....	.....	
Cash in Tilley East Area Trust Account	.....	.....	.....	.....	.....	.....	$19,124.88	
Less: Berry Creek area, overdraft	.....	.....	.....	.....	.....	.....	2,478.52	
								$16,646.36
Grazing rentals	$11,590.95	$ 7,591.72	$ 7,144.40	$ 4,450.00	$ 2,354.07	$18,556.70	$51,687.84	
Cultivation rentals	2,526.00	396.66	605.75	721.12	373.53	3,269.93	7,892.99	
Sales of buildings	517.21	.....	2,699.46	2,828.88	5.00	559.00	6,609.55	
Miscellaneous	1,183.26	.....	325.90	332.70	136.00	131.25	2,109.11	
	$15,817.42	$ 7,988.38	$10,775.51	$ 8,332.70	$ 2,868.60	$22,516.88		
								68,299.49
Add: Bank Interest	.....	.....	.....	.....	.....	.....	.....	232.88
								$85,178.73
PAYMENTS								
Construction of dams	$ 2,570.29	$ 678.92	.....	.....	.....	$ 57.60	$ 3,306.81	
Community pastures	44.00	1,710.46	.....	$ 16.00	$ 239.03	476.15	2,485.64	
Road maintenance	820.32	.....	.....	.....	.....	.....	820.32	
Purchase of land	.....	.....	.....	.....	.....	1,000.00	1,000.00	
Miscellaneous	553.48	.....	.....	545.50	20.00	518.90	1,637.88	
	$ 3,988.09	$ 2,389.38	.....	$ 561.50	$ 259.03	$ 2,052.65	$ 9,250.65	
Add: Payments undistributed:								
Purchase of equipment	.....	.....	.....	.....	.....	.....	4,769.17	
Purchase of cars and trucks	.....	.....	.....	.....	.....	.....	4,540.92	
Fireguarding	.....	.....	.....	.....	.....	.....	2,453.40	
Repairs to equipment	.....	.....	.....	.....	.....	.....	1,516.16	
Maps and plans	.....	.....	.....	.....	.....	.....	125.00	
								22,655.30
Cash in bank, March 31, 1939	.....	.....	.....	.....				$62,523.43

ANNUAL REPORT

OF THE

Department of Lands and Mines

OF THE

PROVINCE OF ALBERTA

FOR THE

Fiscal Year Ended March 31st

1940

PUBLISHED BY ORDER OF THE LEGISLATIVE ASSEMBLY

EDMONTON:
PRINTED BY A. SHNITKA, KING'S PRINTER
1941

To the Honourable J. C. Bowen,
Lieutenant-Governor of the Province of Alberta.

SIR:

I have the honour to submit the report of the Department of Lands and Mines for the fiscal year ended March 31st, 1940.

I have the honour to be, Sir,

Your obedient servant,

N. E. TANNER,
Minister of Lands and Mines.

Edmonton, December 13th, 1940.

TABLE OF CONTENTS

PAGE

REPORT OF THE DEPUTY MINISTER 9

I.—LANDS ADMINISTRATION

Report of the Provincial Lands Division 24

Report of the School Lands Division 26

II.—FORESTRY ADMINISTRATION

Report of the Forestry Division 28

III.—MINING LANDS ADMINISTRATION

Report of the Mining Lands Division 57

IV.—TECHNICAL DIVISION

Report of the Technical Division 81

V.—ACCOUNTS ADMINISTRATION

Report of the Accounting Division 88

VI.—SPECIAL AREAS ADMINISTRATION

Report of the Special Areas Board 95

GOVERNMENT OF ALBERTA

DEPARTMENT OF LANDS AND MINES

Resulting from the transfer on October 1st, 1930, of Alberta's natural resources from federal to provincial control, the Department of Lands and Mines was on this date brought into being by the Alberta Government. The general purpose of the new Department was to be one of supervision and management of the resources in question.

Ministers of the Department, responsible at different periods for this administration, appear as follows:

Hon. R. G. Reid, appointed October 2nd, 1930,
Hon. Hugh W. Allen, appointed July 10th, 1934,
Hon. Charles C. Ross, appointed September 3rd, 1935,
Hon. N. E. Tanner, appointed January 5th, 1937.

CHIEF OFFICERS
DEPARTMENT OF LANDS AND MINES
March 31st, 1940

Honourable N. E. Tanner ..... *Minister of Lands and Mines*
John Harvie ..... *Deputy Minister of Lands and Mines*
T. C. Rankine ..... *Departmental Solicitor*
J. W. Stafford ..... *Director of Lands*
M. Gossip ..... *Agent, Calgary Land Agency*
R. Cruickshank ..... *Agent, Lethbridge Land Agency*
J. J. E. Clarke ..... *Agent, Peace River Land Agency*
T. F. Blefgen ..... *Director of Forestry*
E. S. Huestis ..... *Acting Assistant Director of Forestry*
F. W. Neilson ..... *Chief Timber Inspector*
J. W. Hamilton ..... *Superintendent of Mining Lands*
A. A. Millar ..... *Chief Inspector, The Coal-mines Regulation Act*
T. W. Dalkin ..... *Superintendent of the Technical Division*
J. W. Patrick ..... *Acting Accountant*
J. L. Irwin ..... *Statistician*

Special Areas Board

Head Office: Hanna, Alberta

A. C. McCully ..... *Chairman*
D. M. Graham ..... *Secretary*
G. R. Armstrong ..... *Member*

Special District Agents: Hanna, D. M. Graham; Oyen, R. B. Langley; Consort, D. J. Wilson; Medicine Hat, W. C. Elliott; Lomond, J. P. Rorabeck.

The Petroleum and Natural Gas Conservation Board

Head Office: Calgary

Robt. E. Allen ..... *Chairman*
F. G. Cottle ..... *Member*
J. J. Frawley ..... *Member*

REPORT

OF THE

Department of Lands and Mines,

1939-40

Honourable N. E. Tanner,
Minister of Lands and Mines,
Edmonton.

SIR:

I have the honour to submit the tenth Annual Report of the Department of Lands and Mines for the fiscal year ended March 31st, 1940. With the coming of this year, the first decade of the Department's life is reached.

A far graver significance, however, is attached to this period now under review. With Canada's second declaration of war on Germany, proclaimed on Sunday, September 10th, 1939, a tragic entry is made in the pages of Alberta's and Canada's history and in the history of the entire world.

The coming of the second world war, following the first by only a quarter of a century of time, leaves in its wake an ominous note of warning. It is a warning of dark days now here, of darker ones to follow; of crisis, racial and economic, on a world-wide scale; of extinction, the penalty for defeat, and victory, the only possible solution.

Such a warning is as much applicable to Alberta as it is to every other land where civilization is fighting for its existence. As far as this province is concerned, there is a real opportunity to help, for Alberta possesses great and valuable natural resources. By their increased development, invaluable assistance may be offered to the Empire throughout this period of international crisis. It is pointed out in this connection that during the year under review, increased production of these resources was established. Without a doubt these increases will be continued.

Alberta's oil production showed another record for 1939 and as a result helped to offset the question of an adverse exchange, so noticeable in the purchase of a foreign product during wartime.

Shortly after the close of the fiscal year, applications for licensed timber berths perceptibly increased with the growing demand for lumber needed for war activities.

The reconstruction of the salt plant of Industrials, Ltd. at Waterways during the year prevented an increase being shown in salt production. With its completion in the spring of 1940, however, activities were carried out on a much greater scale promising a large increase for 1940.

Another plant completion in this area was that of the Abasand Oils, Ltd., which took place just after the close of the fiscal year. It is hoped that the successful processing of the McMurray bituminous sands may now be effected and that the production of asphalt for road building and recoveries of oil products from this source may be added to Alberta's development programme of her natural resources.

Waiting in the background are the great gypsum deposits of northern and north-western Alberta, the development of which may perhaps be hastened as a result of the definite changes which now must inevitably come to the economic life of this province.

Efforts for the greater distribution of Alberta coal to eastern Canada are being and will continue to be made. Following the close of the year greater activity in tile and clay production resulted in increased pottery and glass manufacture. Increase in the manufacture of bricks was also evidenced.

With the declaration of war it was of course to be expected that depletions of the departmental staff, enlistments for active service, would start immediately and continue from time to time.

Civil servants joining the different branches of the active service forces were given indefinite leave till the end of the war, their respective positions in the Department being available to them on their return. Arrangements were made also for the continuance of superannuation during their absence so that the benefits of pensions on retirement would in no way become impaired.

The drain on the Department's experienced personnel is of course a definite handicap to the continuance of efficiency. It is, however, one of the many and unavoidable prices which governments and commercial institutions must pay at such a time as this. The training of new material in as short a time as possible to fill the vacant ranks, and to carry on, is the only solution that is offered.

In the first year of the war 22 of the Department's personnel have left for active service. Of this number, 2 were departmental officials—Mr. J. A. Hutchison, Assistant Director of Forestry, and Mr. I. N. McKinnon, Accountant.

The list is as follows:—

Name	*Date of Enlistment*	*Branch of Service*
Alexander, J. P.	November 25, 1939	Royal Canadian Air Force
Arcand, Romeo	July 1st, 1940	Royal Canadian Air Force
Barnard, E. D.	September 20, 1939	Royal Canadian Signallers
Baxter, R. D.	November 13, 1939	8th Field Ambulance R.C.A.M.C.
Bowen, R. L.	June 25, 1940	Calgary Highlanders
Browne, O.	October 25, 1939	Edmonton Regiment
Craig, Ace	May 6, 1940	Royal Canadian Navy
Dalphond, M.	June 22, 1940	Royal Canadian Air Force
Hutchison, J. A.	October 27, 1939	Royal Canadian Air Force
Keats, F. V.	April 22, 1940	Royal Canadian Air Force
Krause, R. F.	September 18, 1939	61st Battery, R.C.A.
Lavoie, A. J.	June 1, 1940	South Alberta Regiment
Longson, Burgess	July 29, 1940	4th Petrol, R.C.A.S.C.
Marr, F. B.	September 22, 1940	Royal Canadian Navy
McCardell, W. H.	March 13, 1940	Royal Canadian Air Force
McKinnon, I. N.	May 2, 1940	Royal Canadian Air Force
Newsome, R.	September 21, 1940	Royal Canadian Navy
Peart, A.	September 2, 1939	Edmonton Regiment
Shaver, E. P.	February 1, 1940	Royal Canadian Navy
Shillabeer, W. E.	October 31, 1939	Royal Canadian Navy
Walker, D. R.	August 15, 1940	Royal Canadian Air Force
Young, D. J.	September 7, 1940	Royal Canadian Air Force

In last year's Annual Report reference was made to the discontinuance of granting rights for the purpose of securing first homesteads, second homesteads or soldier grants. This regulation became effective on March 24th, 1939.

From the date of the transfer of Alberta's natural resources from federal to provincial control, October 1st, 1930, which coincided with the date on which the Department of Lands and Mines was created, the granting of entries for first and second homesteads and soldier grants throughout the province totalled 24,074 by the close of the fiscal year 1938-39. This total number represented an area total of approximately 3,851,840 acres. Details surrounding these entries granted, their classification, annual totals and districts in which they were made, are given in the Deputy Minister's and Accounting Division's section of the Department's previous Annual Reports. From the fiscal year 1930-31 to 1934-35,

inclusive, detailed information relative to the granting of these entries is also given in the Annual Reports of the various provincial land agencies.

The issue of these free grants of land, known for so long to residents of Alberta and the west as homesteads, has been carried out for a period of over 50 years. The idea in the beginning, throughout the latter part of the last century and the earlier part of the present, was that the system should principally represent a factor for the encouragement of immigration.

It had its virtues and its drawbacks. The virtues were represented by a large number of settlers, in spite of pioneering discouragements, becoming permanently established, by the opening up and developing of the province, and by economic benefits resulting from the needs and demands of an increased population. The drawbacks were demonstrated by injudicious choice of quarter-sections, which were either unsuitable for agriculture or were situated too far from the railway, by lack of capital at the start to offset the prospect of permanent settlement and by other adverse features embodying land speculation, cancellations through failure to meet taxes and other conditions which proved detrimental to both the settler and to the government.

With the falling off of immigration in recent years, accompanied by the resultant diminishing in annual totals of homestead entries granted, it became apparent that the day of the homestead was over. It had served its purpose and it was apparent that a new system must take its place. This has now been arranged.

On July 25th, 1939 regulations became effective which provided for the issue of agricultural leases on vacant provincial lands within certain defined areas of the province. The leases are granted for 20 year periods with the lessee being given an option for the purchase of the land so leased after 10 years' residence and operation of same, providing that compliance has been made with the regulations covering the terms of the lease.

Purchase price of the land is based on its valuation when taken over by the lessee before improvements have been started. This innovation now stands as the present day counterpart of the homestead in this province.

A fee of $5.00 is charged the applicant to whom the lease is to be granted and annual payments for same are to be made to the Government on a crop share basis. In an area not exceeding 160 acres, where the land described in the lease is of such a nature that it may be made fit for putting into crop at a cost not greater than $6.00 per acre, the areas to be broken shall be 5 acres in the first year, 10 in the second and third, 15 in the fourth and fifth and 25 in the sixth. Where the land described, by reason of brush, timber, etc., shall represent a greater cost than $6.00 per acre for breaking the area to be cultivated may be reduced accordingly. Taxes on the area taken over, the pitfall of so many homesteaders in so many years of the past, are to be paid by the Alberta Government. A condition of the regulations is that at least 50 per cent of the area applied for shall be declared by the Department's soil survey engineers as being suitable for purposes of agriculture.

The new method of settlement, as briefly outlined above, now replaces the old. It fills the requirements of present day conditions as the homestead method could not be expected to do. It also ensures a protective measure in its general supervision of the settler; that is to say, insistence on the all important factor that land chosen for settlement shall be suitable enough to create a reasonable expectancy for successful and permanent occupation, and removal of the old dangers of the pioneer, with little more than his entry fee for capital, being exposed to disaster in an isolated district. To this much-needed improvement is added a more definite promise for the permanence, stability and prosperity of

agricultural activity in Alberta, which in turn must react fevourably on the economic life of the province.

As an adjunct to the new agricultural leases, introduced to replace homesteads, brief mention should be made also of cultivation leases, cultivation permits and grazing leases and permits.

Cultivation leases, like agricultural leases, carry a fee of $5.00, which is charged to the applicant to whom the grant has been made. Cultivation leases may be granted on either provincial or school lands. The area of such a lease is limited to 320 acres, and the lessee has the option of residence on the land, one-third of which, as vouched for in a department inspector's report, must be suitable for cultivation.

A cultivation lease is granted for a ten year period, at the conclusion of which time it may be subject to a further lease term for a similar period. Unlike the agricultural lease, however, no option for purchase may be secured.

Annual rent for the lease, including taxes, shall be 6¼c per acre on portions of same uncultivated, and on a crop share basis with the Government on acreage cultivated. On an area not exceeding 160 acres, applicant must break and crop 5 acres in the first year, 10 in the second and third and 15 in the fourth and fifth. Should the land be covered by brush, timber or other obstacles a postponement of the first year's acreage development may be made to the second year, the second year to the third and so on until the end of the sixth year.

An order in council, dated October 31st, 1939, authorized the issue of yearly permits to cultivate certain lands which have previously been under cultivation.

The issue of such permits applies to those lands in the south-eastern part of the province, which have been withdrawn from the provisions of the ten year leases, already described, and also to such other lands in the province, which have previously been cultivated, but which are not available for the ten year lease, due to the fact that one-third of the area embraced within a quarter section is not suitable for cultivation. Annual cultivation rentals for such permits are at the rate of $1.00 per acre. No fee is required from the applicant.

With the expansion of a settler's agricultural activities, additional land for the accommodation of stock may become necessary. In this connection, and in connection also with stock-raising on a large area as a self sustaining business, grazing permits and leases are available both to settlers and stockmen.

Grazing permits, arranged principally as an accommodation for settlers, may be secured on an annual basis, a fee of $1.00 being charged on application for same. Annual rental is charged at a maximum rate of 4c per acre, which is inclusive of taxes.

Grazing leases, up to a period of 20 years, and subject to renewal periods in compliance with conditions then enforced, require an application fee of $5.00.

Annual rentals for grazing leases are the same as for grazing permits, that is to say, a maximum of 4c per acre, including taxes. No limit is made to the size of area to be leased but the granting of same is subject to a department inspector's report stating that the area applied for is more suitable for grazing than for any other purpose.

Information relative to homestead patents granted over a period of approximately 60 years, secured through the courtesy of Mr. R. A. Gibson, Director, Lands, Parks and Forests Branch of the Department of Mines and Resources, Ottawa, is of historical interest to this Department and to the Government of Alberta. It is reproduced as follows:—

"The first homestead patent was issued to La Corporation des Reverends Peres Oblats de Marie Immaculee des Territories du Nord Ouest on the 26th February, 1884 in the Provisional District of Alberta.

The first homestead patent issued in the Province of Alberta was to George Scheer on the 5th September, 1905.

Acres patented from 1st July, 1883, to 31st August, 1905 in the Provisional District of Alberta (Homesteads):

Surface only	1,457,115	acres
Surface & Underrights	136,649	
Surface & Underrights except Coal	958	
	1,594,722	acres

Taken at an average of 160 acres for the homestead there would be 9,967 homesteads.

Acres patented in the Province of Alberta from 1st September, 1905 to 1st October, 1930:

Surface only	15,298,617	
Surface & Underrights	3,007	
	15,301,624	acres

Taken at an average of 160 acres for the homestead there would be 95,635 homesteads."

By adding similar information, covering the period from the transfer of Alberta's natural resources to provincial control to the period when the practice of granting homesteads ceased to exist, the picture of homestead settlement in this province is completed. The following table is given, therefore, for purposes of illustration.

PROVINCE OF ALBERTA
Area—163,382,400 Acres
255,285 Square Miles

HOMESTEAD PATENTS GRANTED

Period	*Number*	*Area* *Acres*	*Square Miles*
From the date, shortly after Confederation, when the practice of granting homesteads for purposes of settlement was instituted by the Government of Canada to September 1st, 1905, when Alberta ceased to be a provisional district of the North-west Territories and became established as a province	9,967	1,594,722*	2,492*
From September 1st, 1905 to October 1st, 1930, when the natural resources of Alberta were transfrred from dominion to provincial control	95,635	15,301,624*	23,909*
From October 1st, 1930 to March 31st, 1940 (granting of homesteads was discontinued on March 24th, 1939)	14,700	2,388,092	3,731
Totals	120,302	19,284,438*	30,132*

The above totals do not include soldier grants or other forms of free grants, made from time to time over this period, but deal only with first and second homesteads, the latter becoming effective just prior to the transfer of the resources. The area covered by homesteads, for which patents have been granted over the above 60 year period, represents 11.80 per cent of the province's total area.

*Approximate.

Publications

Three publications were prepared and distributed during the year under review, in addition to the usual departmental Annual Report, the Annual Report of The Mines Branch in relationship to coal operations, magazine and newspaper articles dealing with the province's natural resources development, and statistical data, miscellaneous reports and maps. These were entitled "The History of Alberta Oils", "Supplement to Schedule of Wells drilled for Oil and Gas", and "Alberta's Minerals."

"The History of Alberta Oil", published on March 15th, 1940, represents a more complete annual review of Alberta's oil development than any previously published.

For some time the need had been felt for a departmental publication which, in addition to the usual annual data, would contain also a detailed history of the province's oil development throughout past years.

The book is divided into six chapters carrying the following titles:—"The History of Alberta's Oil and Gas Development"; "Alberta Oil Development in 1939"; "Bituminous Sands of Northern Alberta"; "British Oil Production in 1939"; "World Oil Production in 1939"; "Conclusion."

The chapter on bituminous sands is more or less a duplication of that section of "Alberta's Minerals" devoted to this subject but is included in this issue, nevertheless, as a result of its relationship to Alberta's oil development.

The history opens with the first observations dealing with the province's oil possibilities made by early explorers over a century and a half ago.

This is followed by the more prominent introduction of the subject made by Mr. George M. Dawson, Director of the Dominion Government Geological Survey, in 1878. From that date forward the various explorations, test drilling and discoveries of oil and gas evidenced at different times and over a wide-spread area of the province are described.

The book is illustrated throughout giving reproductions of earlier photographs to compare with pictures of present day equipment and methods. In it is included also many statements, graphs and maps bearing relationship to the subject matter presented.

About ten thousand copies of this book were distributed, through the kind co-operation of the Department of Education, to Alberta schools. Many thousands of copies were also sent out to all parts of Canada, the United States and overseas.

"Supplement to Schedule of Wells drilled for Oil and Gas", published at the beginning of 1940, represents a Supplement to the Report entitled "Schedule of Wells drilled for Oil and Gas", published last year and referred to in last year's Annual Report. The Supplement, presenting information dealing with the province's well-drilling, brings this detailed information covering operations carried out in past years up to the close of this one.

The Supplement contains data on oil, gas, geological markers, casings, water occurrences, etc. Included, as in the previous year, is a map of Turner Valley showing locations of individual wells.

"Alberta's Minerals" was first published on April 24th, 1939. It contained a brief review of the province's non-metallic minerals, giving estimates on potential reserves, localities, valuations, development and production totals to date. On April 2nd, 1940, a second edition of this pamphlet was published bringing statistical data up to the close of 1939.

Department's Revenue and Production, 1939-40

Another record was established when the departmental revenue for the fiscal year under review, excluding revenue from the Special Areas, reached a total of $1,944,098.82, which shows an increase over the previous year of $79,386.07. Expenditures totalled $708,605.34, a decrease of $1,019.26 from the year before. A surplus of $1,235,493.48 on income account is therefore reported. An itemized statement, showing revenue increases and decreases, appears on the first page of the Accounting Division's section of this Report.

Petroleum production increased again by 1,387,958 barrels with a total of 8,039,279 barrels for the year. Gas consumption differed very little from the previous year showing a decrease of 1,486,411 Mcf.

Coal production, due to a greater railway demand and additional shipments of domestic Alberta coal to Ontario, showed an increase for the calendar year 1939 of 288,080 tons. Increases are given also for the manufacture of coke and briquettes, the former 221 tons and the latter, 7,271 tons. Electrical power used in the operation of coal-mines increased by 2,964,006 k.w.hrs.

Shale mined during the calendar year 1939 reveals an increase of 7,307 tons. Bricks and tiles manufactured both show increases—the former by 585,371 (number) and the latter by 1,009 (tons). Increases are given also for the

following:—stone, 1,510 tons, sand and gravel, 60,920 tons and cement, 73,473 barrels.

A total of 2,097 land patents, covering an area of 301,431.972 acres, is reported for the fiscal year under review. As in previous years a chart showing annual totals of patents granted from October 1st, 1930, date of the natural resources transfer, is included in the Technical Division's section of this Report. The total area covered by these patents from the above date to March 31st, 1940 is 2,743,562.182 acres.

Provincial and School Lands Administration

Reference has already been made to the discontinuance of granting the right to secure first and second homesteads and soldier grants which became effective on March 24th, 1939, and to the establishment of regulations governing the issue of 20 year agricultural leases as the present day equivalent of homesteads.

A number of applications for homestead entry carrying the usual 90 day option were on file just prior to this enactment. Of these entries, 25 were granted during the present fiscal year under review.

The addition of these 25 to the grand total shown in the previous Annual Report increases the figures in the annual comparative statement appearing therein, in connection with entries for homesteads and soldier grants, to 24,099. This figure represents the final grand total covering entries granted for first and second homesteads and soldier grants from October 1st, 1930—date of the formation of this Department and of the transfer of Alberta's natural resources to provincial control—to the year 1939, when the right to apply for such entries ceased to exist.

As stated in last year's Annual Report, the School Lands Division of this Department was amalgamated with the Provincial Lands Division on May 1st, 1938, the control of the two Divisions coming under the Director of Lands.

Additional information pertaining to those and other matters in relation to provincial and school lands administration is given in the Director of Lands' section of this Report.

Forest Service

Fire Season.—It will be noticed in the accompanying statement dealing with summary of annual fire losses, that the total loss for 1939—$642,110.21—is a considerable drop from that of 1938—$2,046,236.27.

As stated in last year's report, the 1938 total represented the greatest loss since the formation of this Department—definitely an anxious and critical year for the timber resources of the province.

The 1939 loss is the smallest recorded since 1935, a year in which conditions during that season were so extremely favourable that the annual fire destruction was cut down to a minimum of $5,768.00, the smallest figure on record.

Suppression costs for the year under review, as shown in the statement, are also reduced—from $217,055.49 to $148,298.09.

In the general totals from 1930 to 1939, given in the summary, suppression costs show a total of $738,202.55 and total losses by fire, $6,762,723.84.

Timber Industry.—Operations in the province's timber industry were less in 1939 than in previous years. This is attributed to a falling off in the demand for Alberta spruce lumber in the latter part of 1938.

As stated earlier in this Report, the situation became very much changed following the close of the fiscal year under review, resulting from the demand for lumber to fill wartime requirements.

Grazing.—The carrying capacity of ranges in the forest reserves was raised in 1939 as a result of normal rainfall in the preceding year, which increased forage. Reduction in the number of stock grazed in 1938, necessitated by drought of previous years, also helped to improve the forage conditions for 1939. Sheep grazed on these ranges during the year under review increased in number by 2,092.

Forest Nursery and Tree Distribution.—A detailed review of operations at the Forestry Nursery at Oliver and those of subsidiary nurseries at other provincial points is dealt with in the Forestry section of this Report.

National Forestry Programme.—The Youth Forestry Training Project was supplanted in 1939 by the National Forestry Programme. A thorough training in the many phases of forestry work was given during the year by the Alberta Forest Service to 130 young men who were distributed throughout the province in camps and as trainee assistants to rangers.

Mining Lands Administration

Information dealing with quantities and valuations of Alberta's non-metallic minerals produced during the year are given in the Report of the Mining Lands Division. To this is added details covering mineral rights, solid, liquid and gaseous, revenue from fees, rentals, bonuses and royalties, reservations of areas for geological examination and acquisition of varying forms of mineral leases.

Leases dealt with.—Totals of leases issued from October 1st, 1930—date of natural resources transfer—to March 31st, 1940 are shown as follows:—Leases active at date of transfer, 19,635; issued, 8,878; reinstated, 45; divided, 266; cancelled, 22,809; renewed, 256; active as at March 31st, 1940, 5,759. Areas covered by same are given in a separate statement.

Coal.—The table dealing with royalties on coal, produced in former years, is shown from the fiscal years 1907-8 to 1939-40, inclusive.

SUMMARY OF FIRE LOSSES WITHIN ALBERTA FOREST RESERVES

Period	Number of Fires	Cost of Suppression	Area (Acres)	Salvable Timber M.f.b.m.	Salvable Timber (Cords)	Unsalvable Timber M.f.b.m.	Unsalvable Timber (Cords)	Total Loss
October 1, 1930 to March 31, 1931	9	$ 551.67	41.925	.....	.....	2.00	129.00	$ 71.69
April 1, 1931 to December 31, 1931	31	17,624.12	52,218.05	2,370.50	3,086	6,295.73	111,599.00	154,651.47
Calendar Year 1932	32	3,491.04	2,555.75	8.00	15,863	3,845.00	1,005.60	8,790.73
Calendar Year 1933	39	18,409.92	29,275.88	26.75	1,201	19,188.25	108,414.00	95,796.93
Calendar Year 1934	47	31,118.51	21,963.00	1,510.00	9,200	2,661.00	209,550.00	96,195.87
Calendar Year 1935	12	94.56	6.50	.....	.....	.....	60.00	45.50
Calendar Year 1936	52	108,894.48	165,465.00	7,573.00	25	885,192.00	764,594.00	1,504,273.45
Calendar Year 1937	17	387.38	90.00	.....	.....	37,500.00	8.50	292.05
Calendar Year 1938	18	9,422.79	13,111.50	13,740.00	5	518.50	1.50	36,556.45
Calendar Year 1939	46	49,056.68	38,213.75	292.00	1,982	4,229.00	54,721.00	101,455.13
TOTALS	303	$239,051.15	322,941,355	25,520.25	31,362	959,431.48	1,250,082.60	$1,998,129.27

SUMMARY OF FIRE LOSSES OUTSIDE ALBERTA FOREST RESERVES

October 1, 1930 to March 31, 1931	47	$ 686.64	11,145.19	155.00	.....	3.75	.....	$ 79,950.85
April 1, 1931 to December 31, 1931	591	82,088.89	552,658.07	134,536.00	104,199.00	122,690.50	684,625.50	712,835.79
Calendar Year 1932	347	15,320.51	133,562.14	274.75	12,215.00	40,627.15	132,743.00	152,085.58
Calendar Year 1933	249	16,971.75	64,489.12	4,383.50	13,953.50	41,694.50	59,545.00	100,008.43
Calendar Year 1934	193	7,050.51	36,907.00	3,404.50	3,159.00	547.50	14,464.00	29,825.77
Calendar Year 1935	85	1,558.90	6,313.25	160.00	1,195.00	1,513.00	5,371.00	5,722.50
Calendar Year 1936	196	13,647.81	38,989.00	2,374.00	23,116.00	659.00	6,017.00	45,656.85
Calendar Year 1937	358	54,952.28	835,169.00	14,702.00	33,113.00	251,544.00	609,837.00	1,088,173.90
Calendar Year 1938	503	207,632.70	1,745,234.00	35,382.50	23,054.00	650,844.50	1,974,651.50	2,009,679.82
Calendar Year 1939	453	99,241.41	390,925.50	1,305.00	19,336.00	128,129.00	537,186.00	540,655.08
TOTALS	3,022	$499,151.40	3,815,392.27	196,677.25	233,340.50	1,238,252.90	4,024,440.00	$4,764,594.57

SUMMARY OF FIRE LOSSES WITHIN AND OUTSIDE ALBERTA FOREST RESERVES

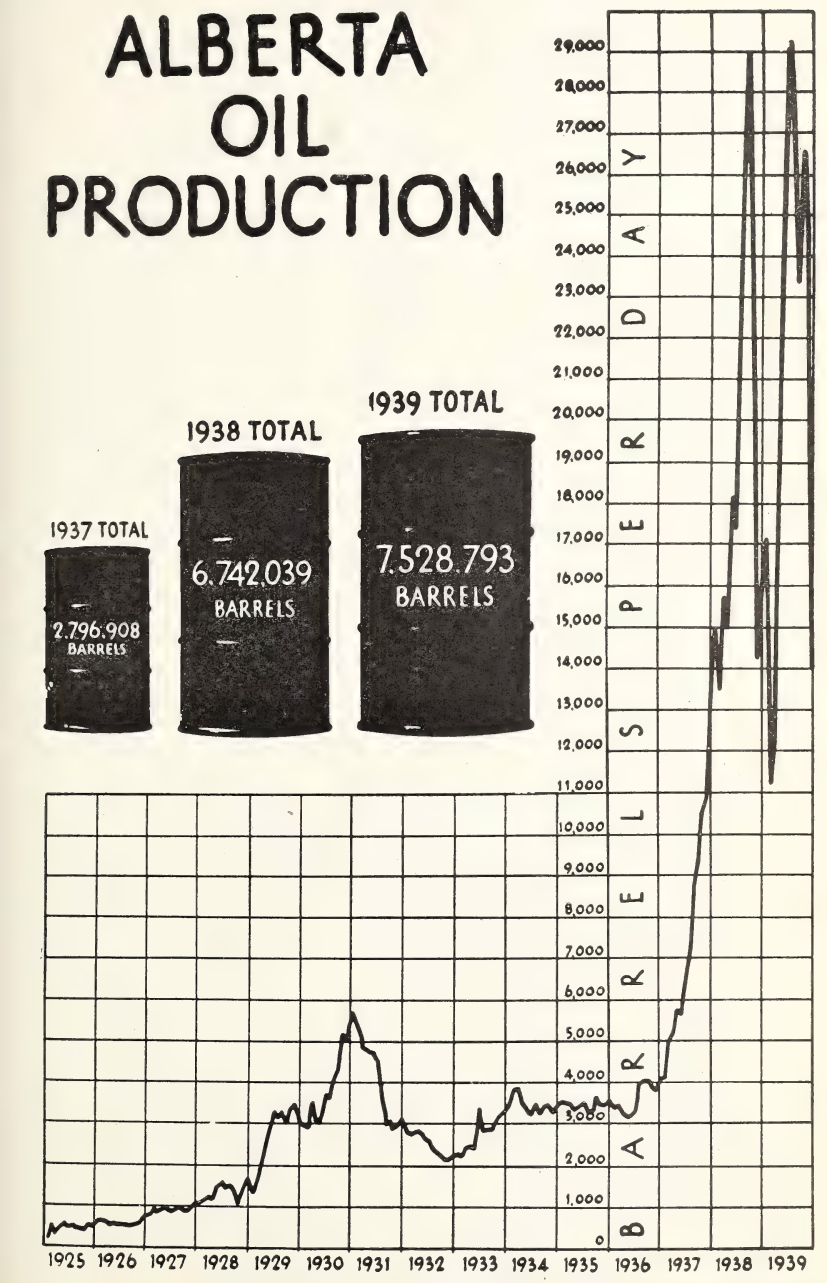
October 1, 1930 to March 31, 1931	56	$ 1,238.31	11,187.115	155.00	.....	5.75	129.00	$ 80,022.54
April 1, 1931 to December 31, 1931	622	99,713.01	604,876.12	136,906.50	107,285.00	128,986.23	796,224.50	867,487.26
Calendar Year 1932	379	18,811.55	136,117.89	282.75	28,078.00	44,472.15	133,748.60	160,876.31
Calendar Year 1933	288	35,381.67	93,765.00	4,410.25	15,154.50	60,882.75	167,959.00	195,805.36
Calendar Year 1934	240	38,169.02	58,870.00	4,914.50	12,359.00	3,208.50	224,014.00	126,021.64
Calendar Year 1935	97	1,653.46	6,319.75	160.00	1,195.00	1,513.00	5,431.00	5,768.00
Calendar Year 1936	248	122,542.29	204,454.00	9,947.00	23,141.00	885,851.00	770,611.00	1,549,930.30
Calendar Year 1937	375	55,339.66	835,259.00	14,702.00	33,113.00	289,044.00	609,845.50	1,088,465.95
Calendar Year 1938	521	217,055.49	1,758,345.50	49,122.50	23,059.00	651,363.00	1,974,653.00	2,046,236.27
Calendar Year 1939	499	148,298.09	429,139.25	1,597.00	21,318.00	132,358.00	591,907.00	642,110.21
TOTALS	3,325	$738,202.55	4,138,333.625	222,197.50	264,702.50	2,197,684.38	5,274,522.60	$6,762,723.84

Petroleum and Natural Gas

In the three and a half year period between the discovery of crude oil in Turner Valley's limestone during June, 1936 and the close of 1939, 104 wells were completed in this field. Of this number 10 developed either as gas wells or were abandoned as unproductive, leaving 94 successful completions in this formation. The record production total of 7,594,411 barrels for the year was recovered almost entirely from these wells.

In 1938 Canada was bracketed with Bahrein Island in the Persian Gulf and Burma for second place in British Empire oil production, the odds being in favour of these two other countries. With the close of 1939, however, Canada for the first time in history took a definite second place in the Empire. Of Canada's total figure of 7,837,711 barrels, Alberta produced 96.89 per cent. The Turner Valley field contributed approximately 99½ per cent of the provincial total. Other oil producing provinces of the Dominion are Ontario, New Brunswick and the Northwest Territories.

A statement showing Empire oil production over the past 8 years, and illustrating the encouraging advance made by Alberta in oil development over the past 3 years, is reproduced on the next page.


ALBERTA
OIL
PRODUCTION
1939 TOTAL
1938 TOTAL
1937 TOTAL
7,528,793
BARRELS
6,742,039
BARRELS
2,796,908
BARRELS
BARRELS PER DAY
29,000
28,000
27,000
26,000
25,000
24,000
23,000
22,000
21,000
20,000
19,000
18,000
17,000
16,000
15,000
14,000
13,000
12,000
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9,000
8,000
7,000
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5,000
4,000
3,000
2,000
1,000
0
1925 1926 1927 1928 1929 1930 1931 1932 1933 1934 1935 1936 1937 1938 1939
DEPARTMENT OF LANDS & MINES, EDMONTON, JANUARY, 1940

PETROLEUM PRODUCTION IN THE BRITISH EMPIRE, 1932 TO 1939, INCLUSIVE

Country	1932 Barrels	1932 Per Cent	1933 Barrels	1933 Per Cent	1934 Barrels	1934 Per Cent	1935 Barrels	1935 Per Cent	1936 Barrels	1936 Per Cent	1937 Barrels	1937 Per Cent	1938 Barrels	1938 Per Cent	1939* Barrels	1939* Per Cent
Trinidad	10,126,121	43.1	9,561,353	41.2	10,894,363	41.2	11,671,224	40.7	13,237,030	39.2	15,502,989	36.8	17,737,060	35.5	19,265,000	37.5
Canada	1,044,412	4.4	1,145,333	4.8	1,401,895	5.3	1,447,204	5.0	1,504,287	4.5	2,943,750	7.1	6,956,811	14.0	7,837,711	15.2
Bahrein Island	902	.....	31,377	0.1	185,072	1.1	1,264,807	4.4	4,644,735	13.7	7,762,264	18.4	8,298,000	16.7	7,500,000	14.7
Burma	7,073,437	30.1	7,114,311	30.0	7,278,859	27.5	7,181,113	25.1	7,587,718	22.5	7,847,553	18.5	7,499,500	15.0	7,394,000	14.4
Brunei	1,200,026	5.1	2,035,656	8.6	2,705,350	10.2	3,302,905	11.5	3,296,938	9.7	4,397,038	10.5	5,387,210	10.8	5,840,000	11.3
India	1,743,878	7.4	1,628,803	6.9	1,921,863	7.3	2,037,810	7.1	1,978,329	5.8	2,161,653	4.9	2,330,200	4.7	2,165,000	4.3
Sarawak	2,329,733	9.9	2,206,815	9.3	1,942,591	7.4	1,776,593	6.2	1,547,882	4.6	1,655,565	3.8	1,624,880	3.3	1,345,000	2.6
Total British Empire	23,518,509	100.0	23,723,648	100.0	26,429,993	100.0	28,681,656	100.0	33,796,819	100.0	42,270,812	100.0	49,833,661	100.0	51,346,711	100.0
World Total	1,306,714,101		1,438,767,449		1,517,121,671		1,651,993,118		1,797,993,578		2,046,650,389		1,979,268,510		2,065,070,440	
Per Cent, British Empire of World		1.80		1.65		1.74		1.74		1.88		2.06		2.51		2.48

*Preliminary figures.

NOTE.—In the total of 7,837,711 barrels shown for Canada in 1939, 7,594,411 barrels or 96.89 per cent were produced in Alberta. The Alberta figure represents the actual production total, the balance of Canada's production being estimated.

ALBERTA OIL PRODUCTION BY FISCAL YEARS

Period	Barrels	Period	Barrels
1914 to close of fiscal year, 1928-29	1,453,404	Fiscal year 1935-36	1,249,596
Fiscal year, 1929-30	1,135,014	1936-37	1,447,661
1930-31	1,614,202	1937-38	3,680,099
1931-32	1,246,328	1938-39	6,651,068
1932-33	871,082	1939-40	8,039,279
1933-34	1,141,473	Total	29,776,164
1934-35	1,246,958		
Increase this year in comparison with last	1,387,958		

ALBERTA OIL PRODUCTION BY CALENDAR YEARS

Calendar Year	Barrels	Calendar Year	Barrels
1914 to 1924	96,504	1934	1,265,940
1925	168,643	1935	1,263,750
1926	219,598	1936	1,320,442
1927	332,133	1937	2,796,908
1928	489,531	1938	6,742,039
1929	999,152	1939	7,594,411
1930	1,433,844		
1931	1,455,195	Total	28,108,752
1932	917,622		
1933	1,013,040		
Increase this year in comparison with last	852,372		

NATURAL GAS CONSUMPTION

Fiscal Year	Mcf.
1938-39	25,626,900
1939-40	24,140,489

Coal

An increase of 288,080 tons is shown in Alberta's coal production for the calendar year 1939 as compared with that of 1938. Production for 1939 totalled 5,518,105 tons with a valuation of $14,454,327.87. An additional 362 tons were produced by farmers under permit for their own use during the year. This figure is not included in the total output mentioned above.

The increased coal production for the year is attributed to a greater railway demand, together with additional shipments of domestic Alberta coal to Ontario.

Production of coke during the calendar year 1939 showed a small increase of 221 tons. Briquettes production was increased by 7,271 tons.

Disposition of Alberta Coal in 1939.—Coal sold for consumption in Alberta totalled 1,241,618 tons; sold for consumption in other Canadian provinces, 1,782,846 tons; sold to the United States, 33,139 tons; sold to railway companies for locomotive use, 2,109,684 tons; used for making briquettes, 43,874 tons; used for making coke, 103,191 tons; used under colliery boilers, 145,275 tons; used by colliery railways, 6,282 tons; put to stock, 51,295 tons and put to waste, 52,170 tons. These tonnages include coal lifted from stock and waste heaps, a figure which is not included in the yearly production total already given.

COAL PRODUCTION

Calendar Year	Tonnage	Valuation
1930	5,755,911	$19,379,000.00
1931	4,564,290	13,415,745.00
1932	4,870,030	13,441,193.00
1933	4,714,784	12,197,339.00
1934	4,748,848	12,440,616.53
1935	5,462,973	13,946,338.15
1936	5,696,375	14,720,004.06
1937	5,551,682	14,434,969.75
1938	5,230,025	13,702,983.41
1939	5,518,105	14,454,327.87
TOTALS	52,113,023	$142,132,516.77
Increases this year in comparison with last	288,080	$ 751,344.46

PRODUCTION OF COKE AND BRIQUETTES

Calendar Year	Coke (Tons)	Briquettes (Tons)
1930	.....	24,111
1931	.....	15,102
1932	2,183	13,582
1933	49,279	16,104
1934	59,703	15,906
1935	63,428	18,812
1936	65,239	21,015
1937	65,967	27,044
1938	68,692	39,239
1939	68,913	46,510
TOTALS	443,404	237,425
Increases this year in comparison with last	221	7,271

Disposition of Electrical Power for Alberta Coal-mines in 1939.—Purchased electrical power used by Alberta coal-mines during the calendar year 1939 totalled 27,575,926 k.w. hrs.

ELECTRICAL POWER USED FOR OPERATION OF ALBERTA COAL-MINES

Calendar Year	K.w.hrs.
1930	25,003,606
1931	16,918,625
1932	14,875,890
1933	17,611,959
1934	19,447,621
1935	23,111,373
1936	24,912,243
1937	25,483,749
1938	24,611,920
1939	27,575,926
TOTAL	219,552,912
Increase this year in comparison with last	2,964,006

Shale and Clay Mined

During the calendar year 1939 four shale pits were in operation. Production from same totalled 27,236 tons of shale and clay from which 8,194,685 bricks and 2,649 tons of hollow tile were made.

Calendar Year	Shale Mined (Tons)	Bricks Manufactured (Number)	Tiles Manufactured (Tons)
1930	67,517	22,007,045	.....
1931	23,855	7,091,080	2,825
1932	8,446	3,444,010	182
1933	3,234	1,221,060	.....
1934	13,561	4,398,032	1,171
1935	20,258	7,349,300	.....
1936	24,588	8,963,384	.....
1937	27,144	9,946,794	252
1938	19,929	7,609,314	1,640
1939	27,236	8,194,685	2,649
TOTALS	235,768	80,224,704	8,719
Increases this year in comparison with last	7,307	585,371	1,009

Mines Branch Annual Report.—Statistical information covering Alberta's coal-mining activities and production of shale and clay mined for the calendar year 1939 is given in complete detail in the published Annual Report of the Mines Branch, Department of Lands and Mines, for this period, which appears as a separate publication to this Report.

Technical Division

Issue of Notifications (*Land Patents*).—The following comparative statement shows the number of notifications and acreage covered thereby for the fiscal years from 1930-31 to 1939-40, inclusive:—

NOTIFICATIONS ISSUED

Fiscal Year	Number of Notifications	Area, Acres
1930-31	23	3,019.710
1931-32	784	111,424.478
1932-33	1,260	178,887.233
1933-34	1,106	165,224.553
1934-35	2,006	324,611.398
1935-36	2,965	433,529.126
1936-37	2,231	325,615.379
1937-38	2,266	382,382.437
1938-39	2,874	517,435.896
1939-40	2,097	301,431.972
Totals	17,612	2,743,562.182
Decreases this year in comparison with last	777	216,003.924

New Surveys.—The usual report dealing with new surveys effected during the period is detailed in the Technical Division's section of this Report.

New Maps.—New maps completed during the year were as follows:—natural resources map, scale, 20 miles to the inch; large tracings of Lloydminster-Wainwright area, 120 townships, scale, 5,000 feet to the inch; strip map of Turner Valley showing all well locations with legends to demonstrate category of each well; plant of Turner Valley, scale, 2 inches to the mile, together with graph work, prepared for the publication entitled "The History of Alberta Oil", issued during the year by the Department; agricultural lease map.

Special Areas.—The work involved during the year in the setting up of records with reference to the Special Areas is discussed in detail.

Photostat Machine.—In September, 1939, a modern photostat machine was installed in the Department to facilitate the Division's work. The many advantages materializing as a result of this equipment becoming available are dealt with.

Other activities of the Division during the year are given detailed attention.

Staff

I refer to my remarks at the opening of this Report regarding wartime conditions as they affect this Department.

The difficulties caused by the loss of experienced personnel, away on active service, will no doubt continue. Whilst such losses are expected and are of course at such a time as this wholeheartedly approved, they place, nevertheless, certain obstacles in the way of efficient administration.

These have been and will continue to be overcome. The situation referred to, however, makes necessary a special appeal to those who remain to adapt themselves as speedily as possible to this new problem and to give of their best to the province under the difficult conditions which prevail.

The staff of this Department has in every way responded to this appeal, in return for which I express to them my sincerest appreciation.

Individual detailed reports from the various Divisions of the Department follow.

Your obedient servant,

J. Harvie,
Deputy Minister.

Edmonton, November 30th, 1940.

Provincial Lands Administration

REPORT OF THE DIRECTOR OF LANDS, J. W. STAFFORD

In the annual report of this Division for the year ending March 31st, 1939, attention was called to the fact that the right to obtain homestead entry, second homestead and soldier grant entry was discontinued on the 24th of March of that year as well as the right to make application for the cancellation of an existing entry.

On July 25th, 1939 regulations were established providing for the issue of twenty-year agricultural leases on vacant provincial lands within certain defined areas in the Calgary, Edmonton and Peace River districts, the intention being that these regulations would replace former ones provided for acquiring lands as homestead, second homestead and soldier grant entries.

Under the provisions of these regulations, the lessee is granted an option for the purchase of the land embraced within the limits of the lease, after the lease has been in operation for a period of at least ten years, and providing in the meantime that the lessee has complied with the requirements of the regulations.

Before issuing a lease under the provisions of these regulations it is necessary that the land applied for be inspected and that at least 50 per cent of the area applied for be declared to be suitable for agricultural purposes.

Two soil survey engineers were appointed to the inspection staff of this Department for the purpose of making the necessary reports on application of this nature, and for the purpose of reporting as to the agricultural possibilities of other lands, when required so to do.

Regulations were also established for the issue of yearly permits, without fee, for the purpose of cultivating such areas of provincial lands, including those lands of a class designated school lands, which have already been cultivated, by paying in advance rental at the rate of $1.00 per acre, per annum.

Land agencies have been maintained at Lethbridge, Calgary and Peace River, with sub-agencies at Medicine Hat, Rocky Mountain House, Athabaska, Lac La Biche, Bonnyville, Hines Creek and Grande Prairie.

In connection with the field inspection staff the following is a summary of the work performed:

Requests for inspections outstanding at the 1st of April, 1939	1,439
Reports called from 1st April, 1939 to 31st of March, 1940	4,011
Reports received from the 1st of April, 1939 to the 31st March, 1940	3,969
Reports outstanding at 31st of March, 1940	1,481

This work was carried out by five field inspectors.

The total revenue received for the fiscal year in connection with the administration of provincial lands amounted to $148,286.74 as compared with $159,415.63 during the previous year, showing a reduction of $11,128.89.

Details pertaining to this revenue will be found in the Accounting Division section of this Annual Report.

In addition to the general administration of provincial lands, a complete filing system and central registry were maintained, through which all letters directed to the Department were received and from which all outgoing letters were despatched.

During this fiscal year 163,698 letters were received and 182,007 letters were despatched, being an increase over last year of 28,244 letters received and 6,380 letters despatched.

In connection with the Filing Division, new files were made which brought the total number in use up to 110,140 at the end of the fiscal year.

The number of stencils cut during the present year totalled 344 and 129,320 pages were mimeographed. Translations for this and other Departments numbered 327.

With reference to crop shares to be paid in accordance with the various cultivation leases issued, these crop shares were reduced to the same basis as in the previous year and collections compared favourably with those of former years.

A total of 1,001 hay permits was issued under authority of which 7,314 tons of hay were cut. No hay seizures were made during this fiscal year.

The following statement shows additional transactions completed during the year:

Entries granted	25
Entries cancelled	1,648
Applications for patent received	1,919
Notifications for title issued	2,097
Grazing permits issued	995
Hay permits issued	1,011
Accrued area leases issued	65
Cultivation leases issued	132
Cultivation and grazing leases cancelled	29
Provincial lands sales granted	95
Townsite leases issued	1
Surface leases issued	3
Miscellaneous leases issued	8
Licences of occupation issued	10
Fur farming leases issued	2
Assignments registered	97

The following statement gives particulars concerning transactions in connection with long term grazing leases during the fiscal year under review:

	Number	Area (Acres)
Leases in existence at April 1, 1939	1,396	1,812,280.34
Leases issued	94	84,661.90
Leases cancelled	95	38,193.76
Leases reinstated	20	10,756.17
Leases transferred to Special Areas	3	105,597.45
Leases re-transferred from Special Areas	3	105,597.45
Area added to existing leases	....	16,339.50
Area withdrawn from existing leases	....	29,600.77

On March 31st, 1940, there were in existence 1,415 long term grazing leases comprising an area of 1,856,216.94 acres, summarized as follows:

	Number	Area (Acres)
Dominion leases	627	940,107.77
Provincial leases	788	916,109.17

School Lands Administration

The report for the fiscal year ending March 31st, 1940, in connection with the administration of school lands, is submitted herewith.

In dealing with the matter of adjustments or compromises with reference to outstanding school lands sales, the Board, appointed for that purpose, continued to function throughout the year and 289 cases were dealt with during this period in connection with which reductions on school lands were made as follows:

Principal	$436,829.91
Interest	490,320.57
Making a total of	$927,150.48

This makes a grand total of 2,253 cases dealt with to the end of this fiscal year, resulting in total reductions being granted in the sum of $2,373,296.43 on account of principal and $1,852,712.70 on account of interest.

All of the Board's recommendations were accepted by the Government and the reductions recommended in each case were made effective by various orders in council passed during the year.

Two sales of lands at public auction were held during the fiscal year at which sales 20 parcels of lands were disposed of comprising a total of 2,604.23 acres for an amount of $18,761.53, being an average of $7.20 per acre.

The total net revenue collected for the fiscal year amounted to $455,291.32, as compared with $444,519.37 for the previous year, representing an increase of $10,771.95.

Of the total revenue collected the sum of $83,664.73 was paid on account of principal moneys in connection with land sales and was transferred to the credit of the School Endowment Fund. The balance of the moneys, namely $371,626.59, comprises payments made on account of interest, rentals, royalties, etc., and other items of a more or less similar nature.

The increase in revenue is chiefly attributable to more favourable farming conditions throughout the province resulting in a larger increase in production.

Regulations were established for the issue of yearly permits on payment of an annual rental of $1.00 per acre in advance, without the payment of fee, for the purpose of cultivating areas of school lands, which had previously been brought under cultivation, and where the area suitable for cultivation on the quarter section affected was less than the area required for the issue of a cultivation lease under the provisions of the regulations.

During the fiscal year 508 cultivation leases were issued comprising an area of 95,737.32 acres, an increase of 467 leases over the number issued last year.

A total of 315 permits was issued authorizing the cutting of 3,405 tons of hay under authority of which 2,793 tons were cut. No hay seizures were made during this fiscal year.

In connection with timber operations 7 timber berths were disposed of by sale and from these berths and other berths in operation the following material was manufactured:

9,874,255 F.B.M. of lumber
37,141 railway ties

In addition to the above, 311 timber permits were issued authorizing the cutting of timber on school lands and under authority of these permits the following material was cut:

1,371,390	F.B.M. of lumber
33,952	lineal feet of logs
5,887	fence posts
322	fence rails
1,087.75	cords of cordwood
12,801	railway ties

During the year a total of 22 timber seizures was made covering the following material:

318,601	F.B.M. of lumber
3,115	lineal feet of logs
163	telephone poles
160,000	lath
75	fence posts
1,099	railway ties

In addition to usual routine business the following transactions were completed:

Assignments registered	70
Cultivation and grazing leases issued	508
Cultivation and grazing leases cancelled	100
Grazing permits issued	1,927
Hay permits issued	315
Timber permits issued	311
Timber seizures	22
Hay seizures	Nil

Forestry

REPORT OF THE DIRECTOR OF FORESTRY, T. F. BLEFGEN

An examination of the Annual Reports of this Division covering the past few years offers little encouragement. In 1936 there was a small revival in the demand for lumber products in the province, with the result that the demand for timber increased to a certain extent, with added revenue to the Department. This condition extended into 1937 but, during the latter part of that year, it again slumped and continued in a slump until the end of the fiscal year 1939-40, with which this report deals.

It is also of interest to note that, year after year, the report of this Division has drawn attention to the fact that the fire protection organization in the Northern Alberta Fire Ranging District is entirely inadequate as to personnel, methods of transportation, communication and equipment available. Year after year it has been pointed out that each man in this vast northern area is required to supervise a larger district than it is humanly possible to control in periods of average fire hazard and, during a period of excessive fire hazard, the task becomes a hopeless one.

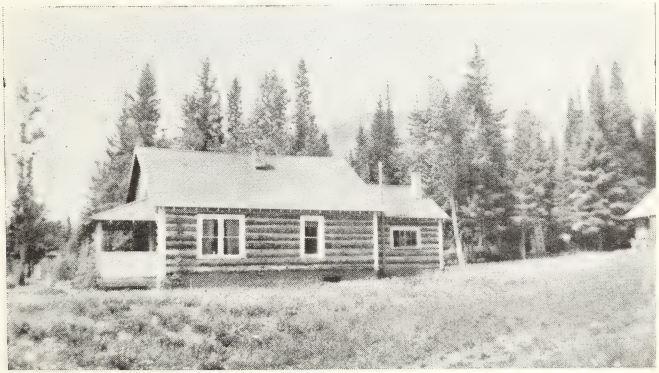
In the Report of last year a ray of hope appeared in the establishment of radio communication for the detection of fires from lookouts with communication between these lookouts and the personnel on the ground. The areas required to be supervised by the rangers are large but, with the benefits of speedier detection of fires, with the resultant speed up of supprssion activities on the part of the ranger, it is hoped that some assistance will be given to these hard pressed individuals and that the results in suppression costs will be gratifying.

Crowsnest-Bow River Forest Reserve, fire in Blind Canyon

Towards the close of the fiscal year under review Canada once again became involved in war. During the last World War the demand for the timber resources of the country increased tremendously. It is expected that the present war will create an even greater demand for timber resources. It is hoped that when this demand arises, the Alberta Forest Service will be given added assistance in personnel and equipment to preserve this much needed natural resource.

Forest Protection

Previous Annual Reports have drawn attention to increasing fire hazard in the northern part of the province, due to the extension of settlement and the fact that the staff in this district is extremely small. The ranger saff has remained, during the past year, approximately the same as that of 1938. The fire hazard was greater due to extreme drought conditions, and settlement has reached farther and farther into the outlying and unproductive areas with disastrous results. With the limited means at the disposal of the Service, an educational campaign, through the efforts of the rangers, has been carried on from year to year for the benefit of the public. In some parts of the country this campaign has been extremely successful and the settlers have co-operated wholeheartedly in keeping down the fire menace. In other parts, however, principally in sections populated by central Europeans, there is a definite refusal on the part of the public resident therein to co-operate with the Service, even though this co-operation would benefit them in the long run.



Sentinel ranger station house, Crowsnest-Bow River Forest Reserve—summer and winter

Fire Season.—The winter of 1938-39 produced a normal snowfall in most parts of the province. The area directly west of the City of Edmonton was an exception, the snowfall being far below normal in this section. The snow disappeared earlier than in the average year and was not followed by the usual spring showers. The result was an early and intensive fire hazard over almost the entire timbered area of the province. Numerous fires occurred, especially in the district west of Edmonton where the snowfall had been light throughout the winter.

During the summer months sufficient rain occurred over the northern part of the province to reduce the fire hazard in that area for the summer months. However, in the district west of Edmonton and in the forest reserves along the east slope of the Rockies, the fire hazard continued through the summer and became intensified in certain areas during the month of August. In this month large, expensive fires occurred in the southern reserves, which spread over and destroyed big areas of timber. Suppression of these fires was extremely difficult due to high, hot winds which occurred almost daily throughout this period. Under conditions such as these the best of protective services are of little value and, although the staff did excellent work, ultimate success in suppressing these fires was only brought about through the medium of rainfall. The sole remedy for such a situation is better co-operation from the public, who are responsible for setting the greater percentage of Alberta's fires.

Fire Prevention.—In former reports mention has been made of the need for up-to-date legislation and proper enforcement of same. This is urgently required to impress upon certain people the necessity of care with fire for the benefit of all. It is hoped that new legislation will be forthcoming in the near future. This will allow for greater efficiency in the enforcement of regulations compelling the careless individual to co-operate with the careful one in saving the natural resources of timber and all those other resources dependent upon forest cover.

BURNING PERMITS ISSUED, PROVINCE OF ALBERTA, 1939

By the Forest Service:			
Cypress Hills	....		
Crowsnest-Bow River	14		
Clearwater	182		
Brazeau-Athabaska	16		
By the staff of the Forest Reserve		212	
Western	484		
McMurray	33		
Slave Lake	217		
Peace River	482		
By the staff of the Northern Alberta Forest District		1,216	
Sub-total		1,428	1,428
By Outside Agencies:			
Honorary Fire Guardians:			
Western	430		
McMurray	31		
Slave Lake	253		
Peace River	886		
		1,600	
Fire Guardians in Municipal Districts		69	
Royal Canadian Mounted Police		657	
Sub-total		2,326	2,326
Total			3,754

PROSECUTIONS AND CONVICTIONS, PRAIRIE FIRES ACT, 1939

	Instituted by Forest Service	Instituted by other Agencies	Totals
Number of prosecutions	43	102	145
Number of convictions	39	74	113

Fire Detection.—The Report for the season of 1938 tells of the construction of four lookout towers in the Western Division of the Northern Alberta Fire Ranging District, west of the City of Edmonton. It also mentions that these lookout towers together with one in the Brazeau Forest, adjacent to the area, were equipped with radio so that fires being detected from these points could be immediately reported to officers on the ground. During the 1938 season a start was made in supplying the ground staff with portable radio equipment. The advantage of direct contact between the ground staff and the lookouts was immediately apparent. During the season of 1939 one more lookout was constructed, known as the Brezeau Tower, located in section 7, township 47, range 10, west of the 5th meridian, on the height of land between the Brazeau and Pembina rivers. This tower was equipped with radio. Portable radio equipment was not immediately available to the personnel of the Western Division in the early spring but, during the summer months, these men were rapidly supplied with this equipment and there was a very noticeable improvement in the detection of fires and the speed with which the ground staff was able to take control. Before the end of the season all members of the Western Division were equipped with radio. In addition, a number of the rangers on the Brazeau-Athabaska Forest, whose districts are beyond telephone communication, were similarly equipped.

During the summer, when conditions permitted, a survey was made of areas to the north and west of those already covered by the lookout system. The result was that two points were picked which would cover large areas not yet covered by the existing system, and which would work in conjunction with lookouts already established. The construction of these towers had to be held over until the following year due to shortage of funds.

Crowsnest-Bow River Forest Reserve, Livingstone River camp shelter

The detection system on the forest reserves, which has been established for a number of years, was carried on with the usual success. Lookout points have been located on high mountain peaks, stations have been established and the entire system connected by telephone to the ground staff. In last season's Report it was pointed out that in the Brazeau Forest this telephone-connected lookout system was in turn joined with the radio equipped system.

The use of portable radios by the ground staff during the latter part of 1939 was found to be of great assistance to them in the speed with which they were

able to contact and suppress fires. It is expected, that with more experience in the use of this communication system, the season of 1940 will show even greater results.

Fire Suppression.—Mention has been made previously in this Report of the abnormal fire hazard with which the province was faced in the spring of 1939. Lack of winter snow in certain areas, coupled with a lack of the usual spring rains, created a hazard which resulted in a large number of fires. The small staff available made a determined effort to take care of all fires menacing merchantable timber or valuable property, but the large areas over which they have supervision made it almost impossible for them to take action successfully on every fire. Some parts of the Northern Alberta Fire Ranging District have practically no avenues of travel, other than an occasional Indian trail, with the result that the ranger is not only slowed down in reaching the fire but finds it difficult to bring in the necessary men, equipment and supplies for suppression activities. It is true that the settlement of timbered areas eventually opens up trails and roads into formerly inaccessible places, but the history of settlement shows that the settler, with the fire hazard, arrives first and the roads later.

Brazeau-Athabaska Forest Reserve—Lovett lookout

Mention has been made previously in this Report of the co-operation of the settlers in various parts of the so-called frontier. Tribute should also be paid to the co-operation of the travelling public, who use the timbered areas of the province for recreational purposes. The people who use these areas for fishing, camping and hunting have become increasingly fire conscious and, with this co-operation from the public, the Forest Service has been able to cut to a minimum the losses on the reserves along the east slope of the Rockies. Occasionally, however, a fire gets beyond the control of human suppression agencies. These fires, in many cases, are the result of carelessness on the part of campers. Over a period of years, however, this menace is gradually decreasing in spite of the fact that the number of people using the reserves is gradually increasing from year to year.

The field staff is hampered not only by large areas, inaccessible to the faster modes of travel, but they have also been hampered through the past few years by a decided lack in the amount of available equipment. It is hoped, that as conditions throughout the country become better and funds become available, this will be remedied to give the ground personnel a better opportunity of carrying on successful suppression activities.

The staff has shown itself to be extremely loyal, putting in long hours of work during the fire season, and they have been extremely successful in fire suppression work in spite of their handicaps. A great deal of credit should be given to these men for their loyalty and the manner in which they try to overcome almost insurmountable obstacles in their work.

Brazeau-Athabaska Forest Reserve—Leyland house and speeder shed

During the fire season of 1939, suppression operations were carried out with fires which reached a total of 499. This number was only 22 less than the season of 1938, which was considered a peak in fire seasons throughout the province. Of these fires 264 were in the larger classes, while the balance of 235 were small fires requiring, in many cases, only the attention of the ranger himself.

The causes of these fires were, as in former years, principally due to campers and settlers. The percentage of fires under this classification is approximately the same as in the previous year. It is noticeable, however, that there is a lower percentage of fires attributed to campers than in previous years. Another bright spot is the fact that the percentage of fires of incendiary origin was substantially reduced from the last few years.

COMPARISON OF FIRE LOSSES BY PERCENTAGE

Causes	1931	1932	1933	1934	1935	1936	1937	1938	1939
Campers	23.7	52.8	38.9	35.4	42.3	38.3	35.9	27.4	28.8
Smokers	3.2	5.3	13.5	11.7	9.3	9.7	4.5	3.6	5.0
Settlers	21.9	17.1	17.4	17.9	8.2	11.7	20.7	14.6	14.8
Railways	6.6	4.5	2.8	5.0	10.3	4.0	9.3	4.2	4.6
Lightning	.6	2.6	5.2	7.5	1.0	14.1	2.2	2.3	4.0
Industrial Operations	1.9	1.1	1.7	4.2	1.0	3.2	.8	1.4	1.4
Incendiary	15.1	8.2	11.8	11.2	22.7	10.1	13.5	14.6	9.8
Public Works	1.4	.5	1.4	1.3	1.0	.4	.3	.8	.6
Unclassified	1.5	1.6	.....	2.5	2.1	2.0	7.2	9.0	13.4
Unknown	24.1	6.3	7.3	3.3	2.1	6.5	5.6	22.1	17.6

RAILWAY FIRE LOSSES, CALENDAR YEAR 1939

This statement deals only with fires burning on forested territory under the supervision of the Alberta Forest Service, and which started within 300 feet of the centre line of the railway right of way.

Causes and number of fires:

Railway causes—Locomotives	11	
Employees	8	
Sub-total		19
Other causes—Campers and travellers	3	
Settlers	11	
Unknown	13	
Unclassified	2	
Sub-total		29
Total		48

Number of acres burned:

Slashing or old burn	....
Timber land	....
Young growth	23½
Not forested	416
Total	439½

Loss:

Timber	.....
Young growth	$ 35.00
Forest products	.....
Other property	550.00
Total	$585.00

ANNUAL STATEMENT OF FIRES BY CAUSES, MONTHLY DISTRIBUTION, ETC., WITHIN AND OUTSIDE FOREST RESERVES, ALBERTA—CALENDAR YEAR, 1939

Cause	Number					P.C.	Damage	Area, Acres	Monthly Distribution												Fires Inside Provincial Forests		Fires Outside Provincial Forests	
	A	B	C	D	Tot.				January	February	March	April	May	June	July	August	September	October	November	December	No.	Area, Acres	No.	Area, Acres
Camp-fires	28	54	33	29	144	28.8	$ 141,260.18	118,979 1/4	10	12	6	23	24	8	14	29	4	3	2	9	14	14,595 1/2	130	104,383 3/4
Smokers	4	7	11	3	25	5	7,530.88	4,166 1/2	...	....	....	5	8	1	3	7	...	1	....	....	5	907	20	3,259 1/2
Settlers	15	11	30	18	74	14.8	71,491.20	67,971	1	....	....	30	20	6	9	5	2	1	....	....	...	.....	74	67,971
Railways	4	14	4	....	22	4.6	66.00	161	....	....	....	7	2	7	3	....	1	2	....	....	2	1/4	20	160 3/4
Lightning	4	4	7	5	20	4	80,647.38	33,146	....	....	....	1	2	....	4	12	1	....	....	....	14	21,705	6	11,441
Industrial Operations	....	5	1	1	7	1.4	3,307.50	871 3/4	...	....	....	2	3	...	1	1	...	....	....	....	1	.....	6	871 3/4
Incendiary	7	3	20	19	49	9.8	106,024.78	81,755 1/2	1	1	....	17	18	3	4	4	1	....	....	....	3	.....	46	81,755 1/2
Public Works	....	2	1	....	3	.6	.30	50 3/4	....	....	....	1	....	1	1	....	....	....	....	....	....	.....	3	50 3/4
Unclassified	15	25	21	6	67	13.4	18,036.20	17,499 3/4	4	5	9	13	15	4	....	9	3	1	4	....	2	3	65	17,496 3/4
Unknown	10	23	24	31	88	17.6	201,037.10	104,537 3/4	4	2	4	19	28	2	4	18	4	3	....	....	5	1,003	83	103,534 1/4
TOTALS	87	148	152	112	499	100.0	$ 629,401.52	429,139 1/4	20	20	19	118	120	32	43	85	16	11	6	9	46	38,213 3/4	453	390,925 1/2
Per cent.	17.4	29.7	30.5	22.4	100				4	4	3.8	23.7	24.1	6.4	8.6	17	3.2	2.2	1.2	1.8	9.2		90.8	

ANNUAL SUMMARY OF FOREST FIRE LOSSES, ALBERTA—CALENDAR YEAR, 1939

FIRE CAUSES	NUMBER OF FIRES: CLASS A	B	C	D	Total	LANDS AFFECTED: Ownership: Public, Acres	Private, Acres	AREA: Total, Acres	CONDITION: Merchantable Timber, Acres	Cut-over Timber, Acres	Young Growth, Acres	Not Forested, Acres	LOSS: TIMBER (MERCHANTABLE AND CUT-OVER): SALVABLE: Saw-timber, M.ft.B.M.	Other, Cords	Depreciation	UNSALVABLE: Saw-timber, M.ft.B.M.	Other, Cords	Loss	Loss of Timber	Loss of Young Growth	Loss of Other Property	Total Loss	SUPPRESSION COSTS: Ranger Service	Other Expenditures	Total	Burning Permits Issued
FIRES WITHIN FOREST RESERVES																										
Campers	4	6	1	3	14	14,595½	....	14,595½	5,288	....	8,694	613½	292	1,950	$1,163.00	2,450	24,391	$ 13,778.88	$ 14,941.88	$ 20,682.00	....	$ 35,623.88	$ 569.50	$ 17,819.47	$ 18,388.97	....
Smokers	....	4	....	1	5	907	....	907	7	....	900	....	....	12	6.00	4	24	33.00	39.00	1,692.00	....	1,731.00	67.88	2,391.79	2,459.67	....
Settlers	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Railways	2	....	....	....	2	¼	....	¼	....	....	....	¼	....	....	....	....	....	....	....	....	....	....	4.75	....	4.75	....
Lightning	4	3	4	3	14	21,705	....	21,705	1,970	2,000	16,844	891	....	....	....	1,755	30,270	13,488.75	13,488.75	48,060.00	....	61,548.75	1,503.18	23,090.49	24,593.67	....
Industrial Operations	....	1	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	$1,170.00	1,170.00	6.00	27.01	33.01	....
Incendiary	3	....	....	....	3	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	6.71	23.10	29.81	....
Unclassified	....	2	....	....	2	3	....	3	....	2	1	....	....	20	15.00	....	....	15.00	30.00	4.00	....	34.00	15.95	31.60	47.55	....
Unknown	3	1	....	1	5	1,003	....	1,003	3	....	1,000	....	....	....	....	....	36	13.50	13.50	1,250.00	84.00	1,347.50	351.88	3,147.37	3,499.25	....
TOTALS	16	17	5	8	46	38,312¾	....	38,213¾	7,268	2,002	27,439	1,504¾	292	1,982	$1,184.00	4,229	54,721	$ 27,329.13	$ 28,513.13	$ 71,688.00	$1,254.00	$ 101,455.13	$ 2,525.85	$ 46,530.83	$ 49,056.68	....
FIRES OUTSIDE FOREST RESERVES																										
Campers	25	48	32	26	131	103,521¾	862	104,383¾	24,810½	1,782¾	24,074¼	53,716¼	40	....	....	34,883	104,524	$ 75,951.67	$ 75,951.67	$ 30,602.13	$ 245.50	$ 106,799.30	$ 1,484.74	$ 22,111.09	$ 23,595.83	....
Smokers	4	3	11	2	20	2,678½	581	3,259½	462½	6	2,036	755	127	1,026	$ 289.25	20½	2,803	1,647.13	1,936.38	4,077.75	81.00	6,095.13	204.13	2,124.93	2,329.06	....
Settlers	15	11	30	18	74	48,414¼	19,556¾	67,971	5,102¼	6,886	11,835½	44,147¼	999	18,260	11,232.90	857½	63,895	38,235.70	49,468.60	29,871.50	3,384.00	82,724.10	1,009.45	8,524.04	9,533.49	....
Railways	2	14	4	....	20	150¼	10½	160¾	2½	....	3½	154¾	3	....	....	....	....	6.00	6.00	10.00	50.00	66.00	46.83	24.60	71.43	....
Lightning	....	1	3	2	6	11,441	....	11,441	3,921	....	2,600	4,920	....	....	....	18,500	14,770	13,918.63	13,918.63	5,180.00	....	19,098.63	203.83	4,190.27	4,394.10	....
Industrial Operations	....	4	1	1	6	653	218¾	871¾	110	114	224	423¾	....	....	....	100	2,240	1,577.50	1,577.50	560.00	....	2,137.50	47.02	429.90	476.92	....
Incendiary	4	3	20	19	46	72,373½	9,382	81,755½	28,499¼	8,325	11,975	32,956¼	113	....	2.54	44,348½	112,635	78,138.40	78,140.94	27,886.38	....	106,027.32	778.43	15,897.25	16,675.68	....
Unclassified	15	23	21	6	65	16,857¾	639	17,496¾	2,719½	512	12,787¼	1,478	20	....	....	1,644	21,620	9,785.75	9,785.75	8,231.45	....	18,017.20	499.75	7,713.91	8,213.66	....
Unknown	6	22	24	30	82	96,901¼	6,633½	103,534¾	26,848¼	21,225	35,794	19,667½	3	50	....	27,775½	214,699	146,875.00	146,875.00	48,904.60	3,910.00	199,689.60	818.76	25,041.27	25,860.03	....
Public Works	....	2	1	....	3	50¾	....	50¾	....	....	....	50¾	....	....	....	....	....	....	....	....	.30	.30	26.48	8.80	35.28	....
																						Miscellaneous Expenditure		8,055.93	8,055.93	....
TOTALS	71	131	147	104	453	353,042	37,883½	390,925½	92,475¾	38,850¾	101,329½	158,269½	1,305	19,336	$11,524.69	128,129	537,186	$366,135.78	$377,660.47	$155,323.81	$7,670.80	$ 540,655.08	$ 5,119.42	$ 94,121.99	$ 99,241.41	....
FIRES WITHIN AND WITHOUT FOREST RESERVES																										
Campers	28	54	33	29	144	118,117¼	862	118,979¼	30,098½	1,782¾	32,768¼	54,329¾	332	1,950	$ 1,163.00	37,333	128,915	$ 89,730.55	$ 90,893.55	$ 51,284.13	$ 245.50	$ 142,423.18	$ 2,054.24	$ 39,930.56	$ 41,984.80	....
Smokers	4	7	11	3	25	3,585½	581	4,166½	469½	6	2,936	755	127	1,038	295.25	24½	2,827	1,680.13	1,975.38	5,769.75	81.00	7,826.13	272.01	4,516.72	4,788.73	....
Settlers	15	11	30	18	74	48,414¼	19,556¾	67,971	5,102¼	6,886	11,835½	44,147¼	999	18,260	11,232.90	857½	63,895	38,235.70	49,468.60	29,871.50	3,384.00	82,724.10	1,009.45	8,524.04	9,533.49	....
Railways	4	14	4	....	22	150½	10½	161	2½	....	3½	155	3	....	....	....	....	6.00	6.00	10.00	50.00	66.00	51.58	24.60	76.18	....
Lightning	4	4	7	5	20	33,146	....	33,146	5,891	2,000	19,444	5,811	....	....	....	20,275	45,040	27,407.38	27,407.38	53,240.00	....	80,647.38	1,707.01	27,280.76	28,987.77	....
Industrial Operations	....	5	1	1	7	653	218¾	871¾	110	114	224	423¾	....	....	....	100	2,240	1,577.50	1,577.50	560.00	1,170.00	3,307.50	53.02	456.91	509.93	....
Incendiary	7	3	20	19	49	72,373½	9,382	81,755½	28,499¼	8,325	11,975	32,956¼	113	....	2.54	44,348½	112,635	78,138.40	78,140.94	27,886.38	....	106,027.32	785.14	15,920.35	16,705.49	....
Unclassified	15	25	21	6	67	16,860¾	639	17,499¾	2,719½	514	12,788¼	1,478	20	20	15.00	1,644	21,620	9,800.75	9,815.75	8,235.45	....	18,051.20	515.70	7,745.51	8,261.21	....
Unknown	10	23	24	31	88	97,904¼	6,633½	104,537¾	26,851¼	21,225	36,794	19,667½	3	50	....	27,775½	214,735	146,888.50	146,888.50	50,154.60	3,994.00	201,037.10	1,170.64	28,188.64	29,359.28	....
Public Works	....	2	1	....	3	50¾	....	50¾	....	....	....	50¾	....	....	....	....	....	....	....	....	.30	.30	26.48	8.80	35.28	....
																						Miscellaneous Expenditure		8,055.93	8,055.93	....
TOTALS	87	148	152	112	499	391,255¾	37,883½	429,139¼	99,743¾	40,852¾	128,768½	159,774¼	1,597	21,318	$12,708.69	132,358	591,907	$393,464.91	$406,173.60	$227,011.81	$8,924.80	$ 642,110.21	$ 7,645.27	$140,652.82	$148,298.09	....
SUMMARY BY DIVISIONS																										
N.A.F.D.*	65	126	133	99	423	326,807¼	23,743	350,550¼	88,985¾	35,490¼	92,951½	133,122¾	226	140	....	128,054	526,595	$350,671.34	$350,671.34	$127,981.06	$5,141.50	$ 483,793.90	$ 4,372.32	$ 82,004.30	$ 86,376.62	....
Clearwater	....	2	5	8	15	38,225½	13,380	51,605½	6,910	3,340½	15,888	25,467	788	18,450	$11,140.04	....	17,654	18,560.67	29,700.71	47,489.50	2,404.00	79,594.21	1,456.91	11,364.78	12,821.69	....
Crowsnest-Bow River	15	9	10	4	38	24,282	740	25,022	3,419	2,022	18,504	1,077	333	740	442.65	3,750	47,467	22,105.15	22,547.80	45,702.25	1,739.30	69,629.35	1,108.23	34,136.81	35,245.04	....
Brazeau-Athabaska	6	11	4	1	22	1,941	20½	1,961½	429	....	1,425	107½	250	1,988	1,126.00	554	191	2,127.75	3,253.75	5,839.00	....	9,092.75	701.85	5,091.00	5,792.85	....
Cypress Hills	1	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	5.96	....	5.96	....
																						Miscellaneous Expenditure		8,055.93	8,055.93	....
TOTALS	87	148	152	112	499	391,255¾	37,883½	429,139¼	99,743¾	40,852¾	128,768½	159,774¼	1,597	21,318	$12,708.69	132,358	591,907	$393,464.91	$406,173.60	$227,011.81	$8,924.80	$ 642,110.21	$ 7,645.27	$140,652.82	$148,298.09	....

*N.A.F.D.—Northern Alberta Forest District.

SUMMARY SHOWING TOTAL NUMBER OF FIRES AND BURNT OVER AREA FROM 1931 TO 1939 INCLUSIVE

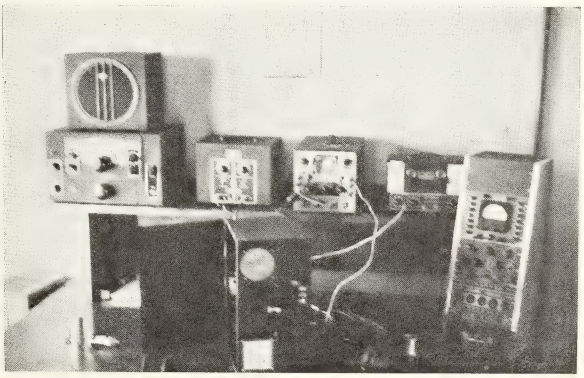
Year	Total No. of Fires	Total Acreage	Not Forested	Net Acreage
1931	622	604,876.12	209,064.75	395,811.37
1932	379	136,117.89	68,253.42	67,864.47
1933	288	93,765	30,955.88	62,809.12
1934	240	58,870	21,656.5	37,213.5
1935	97	6,319.75	3,267.75	3,052
1936	248	204,454	46,534	157,920
1937	375	835,259	155,069.5	680,189.5
1938	521	1,758,345.5	842,384	915,961.5
1939	499	429,139.25	159,774.5	269,364.75
TOTALS	3,269	4,127,146.51	1,536,960.30	2,590,186.21

Radio.—An outline of the work covered by the Radio Communication Branch of the Forest Service for the fiscal year beginning April 1st, 1939 begins with the opening of lookout stations for the fire season. Due to the unprecedented lack of moisture at the start of the period under review, the fire hazard became extremely high and work on the lookout stations started as early as April 19th.

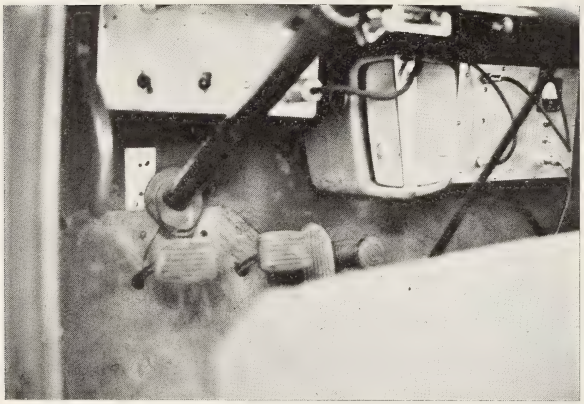
All equipment had been stored the previous autumn at the lookout points, and provision had been made to prevent damage to it as a result of exposure to cold or moisture. Storage batteries, which had been buried the previous November, after being fully charged, were found to be in good condition when placed in service again in April.

New portable equipment had been purchased for use by ranger personnel in the Western District, similar to that in use by the United States Forest Service. Tests had been carried out during the latter part of the winter, using this equipment, and very satisfactory results had been obtained.

The portable radiophones, weighing complete about sixty pounds, are packed in a strong wooden box which contains the set and all accessories. This box is of suitable dimensions for a side pack on a pack horse, or may be arranged as a top pack if desired. In cases of emergency the set, complete with a portable antenna and portable type batteries, may be removed from the kitbox and placed in a waterproofed pack sack. The unit weighs only twenty-three pounds and may easily be carried by a man on foot, or attached to a riding saddle.



Radio test and service equipment



Radio installation in car—receiver on left, transmitter on right

This equipment was distributed to all rangers in the Western Division, eleven in number, and also to rangers in the Brazeau-Athabaska Reserve, whose ranger districts were in the vicinity of lookout towers, or who were cut off from other means of communication. Each ranger was given instructions in the use and care of the set, and allowed to familiarize himself with it thoroughly before taking it away from his headquarters.

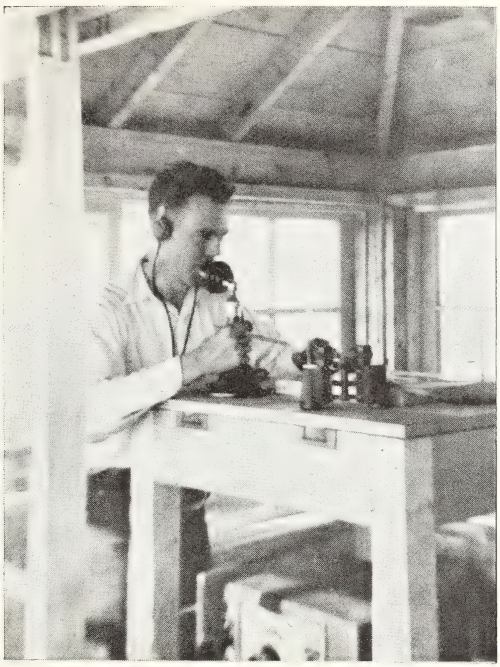
The majority of the ranger personnel showed a marked interest in the new form of communication, though a few of them suffered rather severely at first from what is known as "mike fright", which evinces itself as a total inability to either say anything or even think of anything to say. When this situation had been overcome and they had learned to treat the set as a sort of portable telephone, the real use of this form of communication for Forest Service work became apparent.

In all, seventeen portable radiophone sets were in operation in the field during the season, except for minor equipment failures which could not be foreseen and which were really unavoidable, this equipment operated extremely satisfactorily.

Due to the added experience of the personnel, operating radio equipment at the various lookout towers and headquarters stations required very little maintenance work and it was gratifying to note that, for the entire season, the communication efficiency of the Forest Service was approximately 98 per cent.

The receivers originally purchased in 1938 were found to be inadequate. They were returned to the manufacturer and replaced by a more selective and powerful type which was placed in service at the beginning of the season. On account of the extremely low power of the portable sets, it was found advisable to have sensitive receivers at the tower points in order that communication efficiency could be maintained, and, in cases where two portables were unable to communicate direct, they were able to utilize the tower station for a relay point and pass information to each other through the tower station. This was found especially useful when effecting communication between portable and mobile units.

Transmitting equipment was purchased for two car installations, but, as it was found impossible to secure a suitable receiver for this work from the manufacturers, two receivers were constructed by the Forestry's own personnel. These receivers are of the fixed frequency type, having the two forestry frequencies



Tower lookoutman at work—reporting fires

incorporated on a switch, thus doing away entirely with the necessity for tuning. Thus the mobile installations are as simple to operate as an ordinary telephone, and the possibility of communication failure, due to operator error, is cut to a minimum. In all equipment designed by this Department extreme simplicity of control and operation has been the policy maintained so that untrained personnel may use it with a minimum of previous training.

All lookout stations were supplied at the beginning of the season with a certain amount of meteorological equipment in order that accurate weather reports could be forwarded to the headquarters office twice daily. Rain gauges were furnished by the Department of Transport, but maximum and minimum thermometers, a wet and dry bulb thermometer and the necessary Stevenson screens for housing them, were supplied by the Forest Service of this Department.

Instructions for the use of these instruments were given to the various lookoutmen concerned, and it was found that the increased accuracy of the weather reports submitted was well worth the effort expended in installing this equipment. It is expected that consolidation of all weather reports for the entire season will enable the Service in the future to forecast fire hazard in various districts with reasonable accuracy, thus making it possible to curtail burning permit privileges before a point of definite hazard is reached.

A high power transmitting and receiving station was installed in the Service's Edson office at the headquarters of the Brazeau-Athabaska Forest Reserve, to provide communication with portable equipment in the reserve and also direct with the headquarters office in Edmonton. Due to reception conditions in Edson, and also to local interference, considerable difficulty was experienced at

first, but the townspeople showed willingness to co-operate with the personnel in overcoming this nuisance, and a considerable amount of work was done to alleviate the severe noise condition which had existed prior to this station becoming installed.

A semi-portable installation was completed at Entrance, using a Type I car transmitter and a small Howard communication receiver, both of which were powered from a 6-volt storage battery. Provision for charging the storage battery was made by supplying a small gasoline driven generator. The operation of this generator is exceedingly economical, and the entire station equipment may be moved on a waggon to a different location by untrained personnel.

It is of interest to note that, during the month of August, a request was received from the Chief Ranger at Lesser Slave Lake for radio communication between a large fire, situated in the Wabiskaw area, and the Lesser Slave Lake headquarters. Two portable type radiophones were taken into this area, and one was installed permanently at the headquarters office. The other was installed at the fire, a distance of approximately forty miles airline. Despite the fact that none of the personnel were familiar with this type of equipment prior to its arrival, adequate communication was provided for the duration of the fire. The estimated normal range of the portable equipment in use is fifteen miles airline under all conditions. It can be seen, therefore, that the results attained in this particular case were most satisfactory. The Lesser Slave Lake installation was later used to provide communication with the Edson-Edmonton circuit.

Upon completion of the season's operations, all the gasoline driven power plants at the various lookout points were overhauled. Each of these engines had had approximately five hundred hours running time, and they were all found to be in good condition. Extreme care had always been taken in connection with the quality of gasoline and oil used in these engines, and it was gratifying to find that this care had not been wasted.

All portable equipment was recalled to the Edmonton headquarters, upon completion of the fire season, for overhaul during the winter. In addition, a considerable amount of experimental work was carried out during the winter months.

A demonstration of the Forest Service's portable and mobile radio equipment was made for the benefit of the Lands, Parks and Forests Branch of the Department of Mines and Resources, Ottawa, the members of which were quite impressed by the efficiency and flexibility of this type of equipment.

A synopsis of the season's operations is given herewith, which shows quite clearly all important figures in connection with the costs of operation. It is of interest to note that the cost per message of messages handled by the radio communication system was not only lower than the previous year, but also considerably cheaper than other forms of communication.

OPERATING COSTS—RADIO SYSTEM, 1939-40

Engine Time		1,321 hrs. 31 mins.
Fuel Consumption:		
Gas		353 gals.
Oil		57 2/3 qts.
Traffic Handled:		
Messages		18,728
Words		262,398
Gasoline, 353 gals. @ 32.90 cents gal.	$116.14	
Oil, 57 2/3 qts. @ 70.5 cents gal.	10.13	
Travelling expenses Radio Superintendent—20% of total chargeable to operations	102.18	
Lookoutmen's salaries—10% of total chargeable to radio operations	238.80	
		$467.25
Cost per message on above basis—2.4 *cents.*		
Depreciation of equipment—20% of $8,282.00		$1,656.40 (2)
		$2,123.65

Cost per message on above basis plus cost of depreciation (2)—11 *cents.*

NOTE: Equipment to be fully depreciated in five years.

Personnel.—The number of rangers employed by the Forest Service during 1939 remained practically the same as in former years. The Service was fortunate this year, however, in securing the appointment of practically all rangers early in the season and in advance of the spring fire hazard. The fire season broke early and the personnel, with the added assistance in many districts of better communication, was able to carry on to better advantage than in former years.

Jumping Pound Ranger Station Stable—Crowsnest-Bow River Forest Reserve

In spite of the fact that most of the Forestry men are seasonally employed, the Division has been able to secure the services of the same men from year to year in the same districts. This arrangement makes it possible for the rangers to anticipate the area of greatest hazard in the early spring and concentrate on it. If it were necessary to place new men in these districts, from time to time, it would be very difficult for them to carry on due to the fact that it would, in many cases, take them the best part of the season to become thoroughly familiar with the district over which they had jurisdiction.

The early fire season of 1939 was confined largely to the area north and west of the City of Edmonton, where the personnel achieved good success in suppression action. On other areas throughout the province the hazard was high in the early spring but, through the co-operation of the public and the efforts of the Service's personnel, the number and size of fires were kept to a minimum. A great deal of credit and praise is due to the rangers for their efforts in taking care of a short but very hazardous spring season.

During the autumn fire season the northern part of the province was comparatively free from fires, whereas the forest reserves along the eastern slope of the Rockies experienced an extreme hazard, with some fires getting out of control due to extremely high winds coupled with hot, dry weather. In these areas the Division was again fortunate in having men who have been with the Service from year to year and who were thoroughly familiar with the districts under their control. This situation made it possible for them to act quickly and effectively on many fires which might have assumed larger proportions had they been allowed to spread without immediate suppression action being taken.

It is hoped that when more funds are available, the Forestry may retain throughout the year at least a nucleus of personnel so that all improvements, especially communications, may be kept up throughout the winter and be in first class shape therefore at the beginning of the usual spring fire season.

Fire-fighting Equipment.—The amount of equipment available to the Service throughout the province is not enirely adequate. In the southern reserves a fair supply is on hand and is used very effectively by suppression crews. In the northern ones, where the men are compelled to cover vast areas, the amount of equipment is still far short of what is desirable. The result is that suppression action on fires must, in many cases, be restricted to the quality and quantity of tools which are available. It is hoped that conditions will improve to the extent that the Service may be able to supply the men in these districts with adequate fire-fighting equipment for their needs.

Forest Administration

Provincial Forest Reserves.—This section of the Report deals with the timber disposed of from the forest reserves as apart from the timber disposed of from all other areas within the province. There were thirty-one active timber sales operating on the reserves during the year, with a total cut of slightly more than 5,000,000 feet, board measure, of lumber, and approximately 2,250,000 lineal feet of round timber, principally mine props.

The demand for lumber and mine props has increased in the southern part of the reserves, whereas, in the northern part, there has been same decline in this demand, principally due to lack of operations in the coal mines. The demand for timber throughout the entire reserves has been very similar to that of last year, and it is not expected that there will be a greater demand until such time as coal mines become more active, and the demand for lumber for building purposes increases.

TIMBER CUT UNDER PERMIT—ALBERTA FOREST RESERVES—FISCAL YEAR 1939-1940

	Cooking Lake	Cypress Hills	Crowsnest-Bow River	Clearwater	Brazeau-Athabaska	Totals
Number of permits	43	292	285	32	28	680
Fuelwood, dry (cords)	146	900	3,466	670	46	5,228
Fuelwood, green (cords)	.....	.....	24	40	6	70
Mine timber, dry (lineal feet)	.....	.....	263,970	39,000	177,823	480,793
Mine timber, green (lineal feet)	.....	.....	300	26,666	.....	26,966
Mine Timber (pieces)	.....	.....	.....	.....	.....	.....
Lagging (cords)	.....	.....	5	.....	.....	5
Lagging (lineal feet)	.....	.....	4,000	25,000	.....	29,000
Fence posts	6,100	17,655	10,139	.....	80	33,974
Sawlogs (F.B.M.)	.....	.....	245,650	.....	.....	245,650
Round timber (pieces)	2,750	14,110	13,296	.....	576	30,732
Round timber (lineal feet)	11,834	.....	21,963	1,700	75	35,572
Fence droppers (pieces)	.....	.....	.....	.....	.....	.....
Telephone poles (pieces)	.....	.....	.....	.....	.....	.....
Telephone poles (lineal feet)	.....	.....	.....	.....	.....	.....
Mine ties (pieces)	.....	.....	.....	.....	4,027	4,027
Mine ties (lineal feet)	.....	.....	.....	20,000	.....	20,000
Tram ties(lineal feet)	.....	.....	140	.....	.....	140
Railway ties, green (pieces)	.....	.....	.....	.....	600	600

Provincial Lands.—During the latter part of the year 1938 there was a falling off in the demand for Alberta spruce lumber, with the result that operations were smaller during the year 1939 than for some previous years.

The number of active timber berths remained approximately the same, but the amount of material produced was smaller than that in 1938, which was in itself a small production year. A slight rise was noticeable in the demand for special timber permits by small operators. The amount of material obtained from these operations was, however, smaller than for the previous year. The number of timber permits issued was slightly higher than the previous year, but the amount of lumber produced showed a reduction of approximately 20 per cent. The number of railway ties produced during 1939 was approximately two-thirds of the amount produced in the previous year.

During 1939 the regulation allowing certain free timber to homesteaders was changed to meet the change in policy of the Government whereby leases replaced homesteads.

During 1938 a reduction was made in the dues on railway ties. It was found in 1939 that this reduction did not apply to operations conducted on damaged timber berths. The lowering of rates was taken care of on this type of berth.

By order in council, dated the thirtieth of October, 1936, a reduction in dues was granted in connection with sawn lumber. This was extended, from time to time, to June 30th, 1939, and during 1939 was further amended extending it to the thirtieth of June, 1940.

STATEMENT OF TIMBER OPERATIONS FOR 1939-40 ON PROVINCIAL LANDS IN THE EDMONTON DISTRICT AND IN THE CALGARY, PEACE RIVER AND LETHBRIDGE LAND AGENCIES

	Head Office, Edmonton District	Calgary Agency	Peace River Agency	Lethbridge Agency	Totals
(a) OPERATIONS ON LICENCE TIMBER BERTHS:					
Number of active operations	35	8	.....	.....	43
Lumber, feet, board measure	26,863,046	5,732,827	.....	.....	32,595,873
Railway ties	48,453	1,393	.....	.....	49,846
Round timber (including mine timber), lineal feet	9,862	1,725,765	.....	.....	1,735,627
Lath	1,220,925	.....	.....	.....	1,220,925
Cordwood, cords	108	128½	.....	.....	236½
(b) OPERATIONS ON TIMBER PERMIT BERTHS:					
Number of active operations	245	20	.....	.....	265
Lumber, feet, board measure	60,250,247	6,421,920	.....	.....	66,672,167
Railway ties	502,781	11,201	.....	.....	513,982
Round timber (including mine timber), lineal feet	60,872	71,090	.....	.....	131,962
Lath	2,721,960	.....	.....	.....	2,721,960
Shingles	209,750	.....	.....	.....	209,750
Cordwood, cords	263	153	.....	.....	416
(c) OPERATIONS UNDER SPECIAL TIMBER PERMITS: (Sec. 40 (h) of the Timber Regulations)					
Number of active operations	197	43	.....	.....	240
Lumber, feet, board measure	3,445,165	687,586	.....	.....	4,132,751
Railway ties	131,083	19,985	.....	.....	151,068
Round timber (including mine timber), lineal feet	94,398	42,120	.....	.....	136,518
Lath	116,300	.....	.....	.....	116,300
Shingles	130,000	17,500	.....	.....	147,500
Cordwood, cords	210	.....	.....	.....	210
(d) TIMBER PERMITS ISSUED AUTHORIZING THE CUTTING OF MATERIAL SHOWN HEREUNDER:					
Number of permits issued	1,166	157	806	19	2,148
Lumber, in feet, board measure	6,193,906	219,121	5,133,671	1,500	11,548,198
Railway ties	33,278	.....	5,126	.....	38,404
Piling, lineal feet	28,466	.....	10,240	144	38,850
Mining timber, lineal feet	94,060	411,100	.....	.....	505,160
Telegraph and telephone poles	2,333	2,700	109,050	.....	114,083
Building logs and culvert timber, lineal feet	52,142	36,026	74,738	90	162,996
Fence rails	432,130	24,365	647,805	600	1,104,900
Fence posts	133,899	26,010	163,170	300	323,379
Fence droppers	1,200	.....	.....	.....	1,200
Roof poles	95,017	4,400	128,360	175	227,952
Fuelwood, cords	7,210	1,501	1,586	73	10,370
Mine ties, number	400	.....	.....	.....	400
Guard rails	3,150	.....	.....	.....	3,150
Shingles	306,000	10,000	39,000	.....	355,000
Shingle bolts, cords	61½	30	253	.....	344½
Lath	200,000	.....	.....	.....	200,000
Lath bolts, cords	.....	135	.....	.....	135

SUMMARY OF TIMBER OPERATIONS ON PROVINCIAL LANDS, 1939-40

	Licensed Timber Berths	Permit Timber Berths	Provincial Lands Timber Permits		Forest Reserve		Totals
			Special (Sec. 40h)	Other Permits	Timber Sales	Timber Permits	
Number of active operations	43	265	240	2,148	31	680	3,407
Lumber (feet, board measure)	32,595,873	66,672,167	4,132,751	11,548,198	5,056,737	245,650	120,251,376
Railway ties	49,846	513,982	151,068	38,404	26,004	600	779,904
Piling (lineal feet)	.....	.....	.....	38,850	.....	.....	38,850
Mine timber (lineal feet)	1,735,627	131,962	136,518	505,160	2,106,363	541,759	5,157,389
Telegraph and telephones poles (lineal feet)	.....	.....	.....	114,083	.....	.....	114,083
Building logs and culvert timber (lineal feet)	.....	.....	.....	162,996	.....	66,304	229,300
Fence rails	.....	.....	.....	1,104,900	.....	.....	1,104,900
Fence posts	.....	.....	.....	323,379	.....	33,974	357,353
Fence droppers	.....	.....	.....	1,200	.....	.....	1,200
Roof poles	.....	.....	.....	227,952	.....	.....	227,952
Fuelwood (cords)	236½	416	210	10,370	246	5,298	16,776½
Mine ties (number)	.....	.....	.....	400	.....	8,349	8,749
Guard rails	.....	.....	.....	3,150	.....	.....	3,150
Shingles	.....	209,750	147,500	355,000	.....	.....	712,250
Shingle bolts (cords)	.....	.....	.....	344½	.....	.....	344½
Lath	.....	1,220,925	2,721,960	116,300	200,000	.....	4,259,185
Lath bolts (cords)	.....	.....	.....	135	.....	.....	135
Tram ties (lineal feet)	.....	.....	.....	.....	.....	140	140
Number of inspection reports submitted by timber inspectors	.....	.....	.....	.....	.....	.....	2,254
Number of timber seizures made	.....	.....	.....	.....	.....	.....	170

Grazing

In the report for the previous year—for the season of 1938—mention was made of a reduced amount of forage on the forest reserves due to a cycle of dry years. For 1938 it was necessary, therefore, to reduce the carrying capacity on various ranges, especially throughout the southern reserves, with a view to bringing back much needed grass cover and better forage conditions.

In the season of 1939 it was possible to again raise carrying capacities in most districts due to the increased forage, brought about by normal rainfall in 1938 and by reduction in the number of stock grazed during that season. The spring of 1939 was not a favourable one for grazing purposes due to the fact that the early part of that season was extremely dry and new grass did not take hold until heavy rains occurred in the beginning of June. These heavy rains completely changed the situation and, for the balance of the season, forage on all areas of the reserves was ample for the requirements of the stock placed thereon.

Cypress Hills Forest Reserve—Grayburn Coulee Road

Since the beginning of grazing on forest reserves it has been the policy of the Department to foster the formation of stock associations where a number of permittees are grazing stock together. During the season of 1939 one new association was formed, namely, the Elbow Stock Association, grazing stock on the Elbow River valley. Arrangements were going forward at the same time for the formation of two other associations in the Crowsnest Forest, to be completed early in the spring of 1940. On the Clearwater Reserve the Moose Ridge Stock Association, which had carried on grazing in the Clearwater valley for a period of two years, was compelled to disband due to the shortage of stock in this particular part of the country.

Stock coming off the range at the close of the 1939 season was in excellent condition, and it is expected that the demand for grazing during the season of 1940 will surpass that of any recent year.

GRAZING STATEMENT—ALBERTA FOREST SERVICE, 1939-40

Forest	No. of Permits	No. of Horses	No. of Cattle	No. of Sheep
Cypress Hills	60	470	2,108	.....
Crows-nest-Bow River	250	1,318	20,208	6,847
Clearwater	42	345	.....	.....
Brazeau-Athabaska	130	598	70	36
TOTALS	482	2,731	22,386	6,883

COMPARATIVE STATEMENT, GRAZING—ALBERTA FOREST SERVICE

Grazing year	1931	1932	1933	1934	1935	1936	1937	1938	1939	Totals	Average
No. of permits	456	606	493	517	533	497	529	437	482	4,550	506
No. of cattle	15,041	20,086	20,230	22,557	25,097	23,407	18,921	22,280	22,386	190,005	21,112
No. of horses	3,417	3,377	3,185	2,541	2,207	2,441	3,418	3,024	2,731	26,341	2,927
No. of sheep	4,379	7,465	6,705	3,078	4,114	5,443	3,174	4,791	6,883	46,032	5,114

Improvements

The amount of new construction, such as buildings, telephone lines, roads, trails and other structures, has been curtailed for a number of years due to the lack of available funds. From year to year some progress has been made in a small way with the reconstruction of certain buildings which have required renewing due to age and long years of use. Certain additions have been made to telephone lines, roads and trails, but, for the most part, the staff has been kept busy maintaining the large number of improvements already located on the reserves.

During the season of 1939 the amount of new construction was again curtailed for the same reason, but it was found possible, subject to the limited means at the disposal of the Service, to carry on certain new improvement projects.

On the Crowsnest forest work was continued on a road leading up Byron Creek to connect the mining towns in the Crowsnest Pass with areas of valuable timber in the Carbondale and Castlemount River watersheds to the south.

On the Bow River Forest it was found necessary to rebuild one of the ranger station stables at the Jumping Pound Ranger Station. This building, being constructed entirely by the Forestry's own personnel, is a credit to the Service. On the same forest, the communication system was extended south of the town of Canmore by constructing a telephone line from Spray Lakes to Kananaskis Lakes. This connection had been urgently required for some years resulting from the prevalence of fire in the Kananaskis Lakes area, principally due to lightning, and the necessity of obtaining fast communication between that point and the outside for securing men and supplies for fire suppression.

On the Brazeau-Athabaska Forest another extension was made to the telephone communication system by the construction of a telephone line connecting the Brazeau and Athabaska Divisions of this forest from Coalspur to Entrance. A great deal of assistance was rendered to the Service in the construction of this telephone line, and that of the Kananaskis Lakes district, by the establishment of the National Forestry Training camps at these two points. The work of these young men made it possible for the Forest Service's limited staff to carry out these rather large projects.

In the Brazeau Division of the Brazeau-Athabaska Forest a new location was selected for the Greasebone Ranger Station, and a new house was constructed just north of Cadomin, adjacent to the new highway which connects the mining camps in this area. The location of this new ranger station makes it more convenient for the general public of the mining camps to contact the Forestry rangers, not only for the reporting of fires, but in connection with their applications for various natural resources.

The establishment of a large National Forestry Training camp in the Cypress Hills Forest, augmented by road building machinery, made it possible for the Service to extend and improve roads throughout this reserve. These roads are not only an asset for travelling purposes, but are designed primarily as fire guards throughout the district.

Cypress Hills Forest Reserve—fireguard road

The beginning of the 1939 season, with its dry weather and resultant fire hazard, made it very difficult for the personnel to carry out much needed maintenance work on projects in the reserve. At the beginning of the season most of the personnel came on duty at approximately the same time as the fire hazard started. In many cases repairs had to be rushed in connection with telephone lines broken by winter weather, leaving a large amount of work to be done during the balance of the year. Fortunately, the summer season was free from fire hazard in most of the reserve area, and the personnel was successful in putting all improvements in good shape before the usual fall hazard arrived.

ROCKY MOUNTAIN FOREST RESERVE SHOWING ORGANIZATION IN 1939-40

Number of ranger districts	30
Number of rangers	30
Number of assistant rangers	24
Number of lookoutmen	15
Number of telephone operators	1
Area (square miles)	14,236
Length of roads (miles)	681
Length of trails (miles)	3,218¾
Length of telephone lines (miles)	934¼
Number of buildings	246

LIST OF BUILDINGS

Houses	24	Machine sheds	9
Cabins	82	Granaries	1
Lookout cabins	13	Garages	4
Stables	37	Henhouses	6
Bunkhouses	5	Outbuildings	14
Storehouses	17	Woodsheds	6
Blacksmith shops	4	Workshops	4
Haysheds	2	Speeder sheds	7
Boat houses	1	Lookout towers	3
Caches	7		

Number of corrals	50
Number of enclosed pastures	64
Number of grazing divisions	59
Number of grazing permittees	424
Number of stock grazed	27,386
Number of stock associations	14
Number of timber sales	39
Number of miscellaneous use permits	180
Number of grazing use permits	67

IMPROVEMENT STATEMENT

NEW CONSTRUCTION PROJECTS:

Forest	Houses	Garages, Sheds, etc.	Fences	Fields (breaking in acres)	Water Supply Systems	Barns and Stables	Telephones (miles)	Corrals	Bridges	Look-out Towers	Trails (Miles)	Cabins	Fireguard Roads (Miles)	Tourist Stoves	Miscellaneous
Cypress Hills	....	....	1	....	1	....	....	....	....	....	....	....	....	....	2
Crowsnest	....	1	....	....	....	....	....	....	....	....	....	....	....	....	1
Bow River	....	2	....	....	....	2	3	....	....	....	....	1	....	....	1
Clearwater	....	1	....	....	....	....	....	....	....	....	....	1	....	....	....
Brazeau	1	....	1	....	....	....	....	1	....	....	2	1	....	....	1
Athabaska	1	....	....	....	....	....	....	....	....	....	½	....	....	....	....
TOTALS	2	4	2	....	1	2	3	1	....	....	2½	3	....	....	5

MAINTENANCE PROJECTS:

Forest	Houses	Cabins	Barns and Stables	Telephones (Miles)	Trails (Miles)	Roads (Miles)	Fences	Corrals	Water Supply Systems	Garages, Sheds, etc.	Look-out Towers and Cabins	Grounds	Hay Meadows & Pastures	Ferries	Miscellaneous
Cypress Hills	1	1	1	19	....	61	2	....	1	2	....	2	....	....	1
Crowsnest	12	3	6	158½	156½	60	19	4	2	7	....	10	4	....	3
Bow River	7	8	5	131	648½	78½	21	6	3	8	....	17	3	....	3
Clearwater	3	7	....	176	622¼	2	5	1	1	2	....	....	....	....	1
Brazeau	5	6	1	163	265	....	6	1	1	3	....	6	....	....	....
Athabaska	4	9	1	60½	351½	25½	7	3	1	....	....	3	....	....	2
TOTALS	32	34	14	708	2,043¾	227	60	15	9	22	....	38	7	....	10

IMPROVEMENTS—STATEMENT OF MAN-DAYS WORKED

NEW CONSTRUCTION PROJECTS:

Forest	Houses	Garages, Sheds, etc.	Fences	Fields (breaking) in acres	Water Supplies	Telephones (miles)	Corrals	Barns and Stables	Bridges	Look-out Towers	Roads (miles)	Trails (miles)	Cabins	Fireguard Roads (miles)	Tourist Stoves
Cypress Hills	....	....	14	....	9	....	....	....	....	....	9	....	....	....	....
Crowsnest	....	27	....	....	....	....	....	....	....	....	30½	....	....	....	....
Bow River	....	3½	....	....	....	101	....	97	....	....	....	9	20	....	....
Clearwater	....	19	....	....	....	....	....	....	....	....	....	....	6	....	....
Brazeau	75	....	5	....	....	10	3	....	....	....	....	5	49	....	....
Athabaska	28½	....	....	....	....	83	1½	....	....	....	....	3	....	....	....
TOTALS	103½	49½	19	....	9	194	4½	97	....	....	39½	17	75	....	....

MAINTENANCE PROJECTS:

Forest	Houses	Cabins	Barns and Stables	Telephones (miles)	Trails (miles)	Roads (miles)	Fences	Corrals	Water Supplies	Garages, Sheds, Etc.	Look-out Towers and Cabins	Grounds	Hay Meadows & Pastures	Ferries	Miscellaneous
Cypress Hills	38	6½	4	28	....	26½	4½	....	3	6½	....	26	....	....	4½
Crowsnest	72½	8	22	236½	70	309½	157	25	2½	9	....	84	41½	....	20
Bow River	46	27½	12½	329	375	278	238½	52½	18½	37½	....	67½	3½	....	33
Clearwater	23	11	2	184	307	24	67	13	2	2	....	....	....	24	....
Brazeau	38	10½	13½	211	157	....	43½	3	½	13¾	6	32½	....	....	....
Athabaska	2	31½	1	76½	230½	10	38½	11	½	20½	....	26½	....	....	3½
TOTALS	219½	95	55	1,065	1,139½	648	549	104½	27	89¼	6	236½	45	24	61

Publicity

From year to year attention has been drawn in the Annual Reports of the Forest Service to the necessity of carrying on a publicity campaign for the education of the general public in the prevention and suppression of fires. It is regrettable that lack of funds has kept such a campaign to the absolute minimum. It is felt that if the general public could be made fire conscious and brought to realize the vast wastage and excessive costs of fires, this form of destruction would soon be reduced to an absolute minimum.

During the past season the Forestry ranger personnel has contacted on their patrols as many people as possible, explaining the danger of fires, assisting people with the burning of slash and other debris, and in a general way making the public conversant with the problem in hand. The men of the Service have found most of the public extremely helpful and careful in the handling of fire, but there are always some in each community who disregard every warning, with resultant loss not only to their own district but to the province as a whole. It has been found necessary to bring some of these offenders into court, which may or may not have had a beneficial effect on the actual persons concerned.

Nursery and Tree Distribution

Nursery.—The growing of trees from seed at the Forestry Nursery at Oliver has been carried out with pronounced success. Due to the season of 1939 being much more favourable from a moisture standpoint, losses were not as great as during the two previous years. In order to avoid such losses which occur in dry seasons it will be necessary to install an overhead sprinkling system at this point.

Plans have been made to start the growing of trees from seed at the Lethbridge sub-nursery. The soil at this point is not of good quality, but an irrigation system makes it possible for this nursery work to be carried on. Furthermore, the growing demand for transplants necessitates the establishment of seed beds, as well as transplant areas, in the southern part of the province.

Young coniferous tree transplants were forwarded from Oliver to the subsidiary nurseries at Fort Saskatchewan and Lethbridge. These have been from 2-0 stock, and the small trees have established a good root system and are ready for distribution at the end of two years in the transplant areas.

It is worthy of note that continuous success has been experienced with some of the exotic species tried out at Oliver, especially with the oaks. A few oaks, from Alberta-produced acorns, are now in evidence, the seed having been picked from trees on the grounds at Oliver during the fall of 1938.

It has also been possible to secure requirements of Siberian larch seed from cones picked on the grounds, avoiding the necessity of importing this seed from Siberia where it is especially hard to obtain. This source is not and has not been dependable since the start of the Sino-Japanese war.

The deciduous or broad-leafed trees do not need the same amount of shade that young coniferous seedlings require. The planting of seeds from the former species is therefore possible in the transplant areas, both at Oliver and at Lethbridge. This conserves the limited seed bed space for the growing of conifers and will greatly help in meeting requirements of evergreens.

The applications for trees, both of coniferous and deciduous stock, continue to increase from year to year. Very encouraging reports from different parties to whom trees have been supplied are on file. In some cases as high as 95 per cent of those distributed are reported to be doing well. The fact that trees can be grown on the prairies, offering shelter from wind and storms, is, needless to say, a great incentive to farmers to secure such benefits for their land.

Numerous exotic species have been tried out. It is a pleasure to be able to report that red pine (*pinus resinosa*), shagbark hickory (*carya ovata*), and black walnut (*juglans nigra*) are doing very well. It is, however, a little early to say as to whether or not these species will do as well when distributed through the province as they have done in nursery beds and transplant areas.

STATEMENT OF SEEDING DONE AT THE OLIVER NURSERY IN 1939

21	lineal	feet	Norway spruce (*Picea excelsa*)
100	"	"	White spruce (*Picea glauca*)
5	"	"	Sitka spruce (*Picea sitchensis*)
10	"	"	Siberian larch (*Larix sibirica*)
22	"	"	European larch (*Larix europaea*)
120	"	"	Lodgepole pine (*Pinus murrayana*)

Tree Distribution.—The following species and quantities were given out from Oliver in the spring of 1940:

Transplants:		
White spruce (*Picea glauca*)	48,892	
Colorado spruce (*Picea pungens*)	5,085	
Norway spruce (*Picea excelsa*)	3,592	
Green ash (*Fraxinus pennsylvanica*)	4,297	
Red oak (*Quercus rubra*)	4,017	
Bur oak (*Quercus macrocarpa*)	382	
Western white oak (*Quercus alba*)	950	
European larch (*Larix europaea*)	676	
Siberian larch (*Larix sibirica*)	3,070	
Douglas fir (*Pseudotsuga mucronata*)	2,197	
Lodgepole pine (*Pinus murrayana*)	14,545	
		87,703
Cuttings:		
Laurel-leaf willow (*Salix pentandra*)	12,685	
Golden willow (*Salix vitellina*)	13,075	
Poplar (*Populus*)	18,455	
		44,215
Ornamental Species:		
Mountain ash (*Pyrus americana*)	6	
Black walnut (*Juglans nigra*)	52	
Red pine (*Pinus resinosa*)	1,000	
Ladoga pine (*Bugnet—Pinus sylvestris*)	25	
Roses	6	
Red alder (*Alnus oregona*)	36	
Lilac (*Syringa japonica*)	8	
Flowering Almond (*Prunus triloba*)	18	
Cedar (*Thuja occidentalis*)	110	
Basswood (*Tilia americana*)	12	
Spirea	24	
Cottoneaster (*Acutifolia*)	6	
Honeysuckle (*Lonicera ciliosa*)	24	
Weeping birch	6	
Native hawthorn (*Crataegus*)	12	
Elderberry	6	
		1,351
		133,269

The following species and quantities were given out from Lethbridge in the spring of 1940:

Transplants:	
White spruce (*Picea glauca*)	1,970
Green ash (*Fraxinus pennsylvanica*)	2,640
Scotch pine (*Pinus sylvestris*)	420
Lodgepole pine (*Pinus murrayana*)	2,600
	7,630

National Forestry Programme

During the years of 1937 and 1938 the Youth Forestry Training Project was carried on under the supervision of the Alberta Forest Service. One large camp of sixty young men was located on the Highwood River in 1937, while in 1938 thirty-five men were placed in this main camp and the balance were distributed as trainee assistants to rangers throughout the reserves.

In 1939 the Youth Forestry Training Project was supplanted by the National Forestry Programme. Under this scheme it was possible for the Alberta Forest Service to take one hundred and thirty young men into camps, and as trainee

assistants to the rangers in various parts of the province, giving them a very thorough training in different phases of forestry work.

The main camp was moved to the Cypress Hills Forest and thirty trainees placed therein. At this point it was possible to carry on intensive sylvicultural work in the way of seeding, thinning and the general practice of sylviculture. In addition to this it was possible to give them a general training in other phases of forestry work.

The balance of the trainees was spread through the other reserves. It was also possible to place three 10-man units on the Northern Alberta Fire Ranging Division, one in the vicinity of Drayton Valley, one near Lesser Slave Lake and the third in the Peace River area. On the Crowsnest-Bow River Forest twenty young men were assigned as trainee assistant rangers. In addition, one 10-man unit was used in various parts of the reserve in connection with new construction projects and with different types of work which were being carried on. Two 10-man units were placed on the Clearwater Forest Reserve. By moving them from district to district they were given a thorough training in all lines of work. On the Brazeau-Athabaska Forest one 10-man unit was placed in camp and used in a similar way to other smaller units. At the same time ten trainee assistant rangers were placed on various districts through the reserve to work in co-operation with the rangers, and received their training through the practical experience secured in the company of these men. The same plan was followed wherever trainee assistant rangers were placed.

During the season a technically trained forester was used for giving instruction in the theory of forestry in its many forms. He moved from camp to camp and from group to group throughout the province giving each section a course of lectures designed to supply the young men with a thorough knowledge of forestry in its different phases. In addition to the addresses made by this forester, lectures in mimeographed form were distributed to the trainees. Good use of their leisure hourse and rainy days was made by the study of these lectures, which was carried on under the supervision of qualified rangers.

At the conclusion of the season all trainees through the province were classified according to their ability and the success they had attained by making themselves efficient in the various tasks which had been allotted to them. Those ranking the highest were recommended to prospective employers. The result of this programme was that many secured employment which would otherwise have been impossible, due to lack of training.

MILEAGE TRAVELLED BY EMPLOYEES OF THE ALBERTA FOREST SERVICE

FISCAL YEAR 1939-40

Divisions	Foot	Saddle	Driving	Speedet	Auto	Canoe	Rowboat	Motorboat	Plane	Railway	Other	Totals
Northern Alberta Forest District	16,054 ¾	40,614 ¼	14,589	20,519	73,625	1,395	907	7,472 ½	955	10,199	407	186,737 ½
Crowsnest-Bow River Forest	3,260	28,808	3,154	.....	55,500	.....	.....	10	.....	337	15	91,084
Clearwater Forest	4,016 ½	12,134	1,342	830	23,590	.....	.....	16	.....	115	.....	42,043 ½
Brazeau-Athabaska Forest	3,579	13,996	715	2,356	5,397	.....	.....	.....	.....	2,842	.....	28,885
Cypress Hills Forest	.....	2,056	.....	.....	1,824	.....	.....	.....	.....	.....	.....	3,880
TOTALS	26,910 ¼	97,608 ¼	19,800	23,705	159,936	1,395	907	7,498 ½	955	13,493	422	352,630

Mining Lands Administration

REPORT OF THE SUPERINTENDENT OF MINING LANDS, J. W. HAMILTON

The mining industry which commands the greatest interest in the province is still the exploration, development and production of petroleum and natural gas, and the prospects for discovery of new fields were never better than at present. Coal mining, however, is still the major mining industry although the province obtains a far greater revenue from petroleum and natural gas than from coal.

The output of coal was slightly greater during the calendar year of 1939 than that of the previous year whilst production of petroleum showed an increase of nearly a million barrels in comparison with the previous year. The consumption of natural gas remained comparatively steady although somewhat less than last year.

The quantities of non-metallic minerals, produced in the province during the calendar year 1939, were coal 5,518,105 tons, petroleum 7,594,411 barrels, natural gas 23,286,434 thousands of cubic feet, salt 3,322 tons. The structural minerals produced were cement 377,846 barrels, lime 11,907 tons, sand and gravel 853,680 tons, stone 3,201 tons, and shale used for making bricks 27,236 tons.

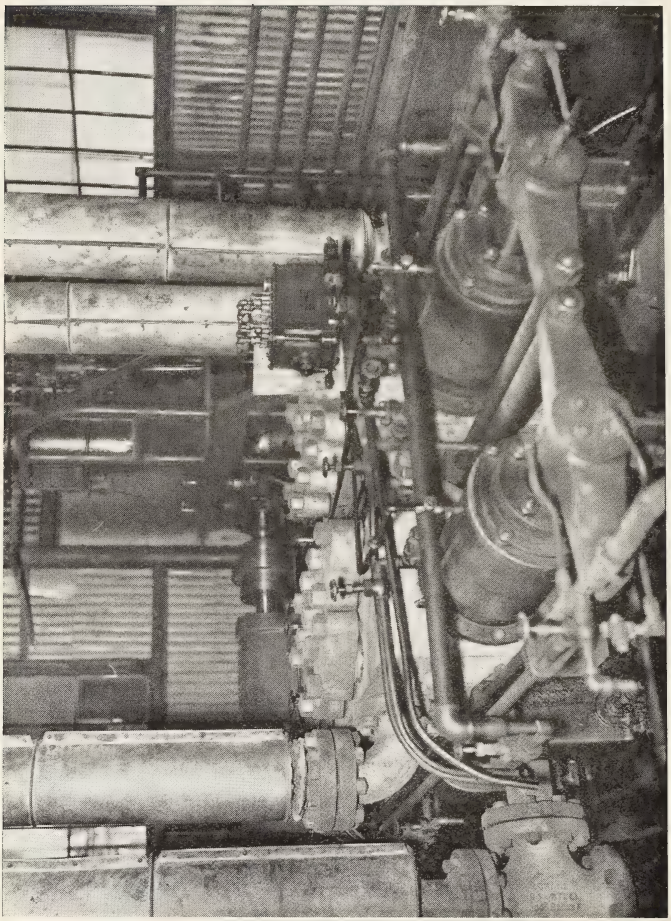
The total value of minerals produced was approximately $26,663,191, of which coal represents $14,454,328, petroleum $9,289,580, natural gas *$931,457, salt $37,526, and the structural materials—clay products $461,079, cement $744,357, lime $105,165, sand and gravel $611,666, stone $15,045, and miscellaneous $12,988.

Mineral rights, solid, liquid and gaseous, the property of the Crown, are not sold but are disposed of by lease, reservation, permit or grant for limited periods of time. The Mining Lands Division is responsible for the administration of regulations governing these rights on both provincial and school lands. Revenue is obtained from fees, rentals, bonuses and royalties and during the fiscal year a total of $1,208,859.01 was received.

Greater activity was shown under the regulations for the establishment of reservations for geological examination of large areas and during the year 475,881 acres were placed under reservation, being approximately 50 per cent greater than during the preceding year. A person or company acquiring rights under these regulations must, in order to procure leases of the rights thought to be most favourable for the recovery of oil and gas, file with the Department a copy of all geological reports with accompanying maps.

The number of applications for mineral rights which were made at the offices of the mining recorders at Edmonton, Calgary, Lethbridge and Peace River during the year was 1,094 and these necessitated the preparation and establishment of a similar number of files in this Division. A large number of requests as to the availability of lands for petroleum and natural gas leases was made by personal application at the office and by correspondence, also numerous enquiries were received regarding all classes of mining rights. Some of the latter required considerable investigation and preparation. The Division dispatched, during the year under review, a total of 25,086 letters.

*Based on a well-head valuation of 4 cents per Mcf.



Hot oil pumps, Gas and Oil Products Absorption Plant
Photograph by Lane's Studio, High River, Alberta

The natural resources of Alberta were transferred from the Dominion Government to the control of the Government of Alberta on October 1st, 1930, and the following tabulation shows the numbers and acreages of the various leases issued from that date to March 31st, 1940.

Type of Lease	Active at date of transfer	Issued	Reinstated	Divided	Cancelled	Renewed	Active at March 31st, 1940
Petroleum and natural gas, provincial lands	16,899	7,492	37	242	19,702	140	4,828
Petroleum and natural gas, school lands	1,964	929	7	21	2,435	1	485
Petroleum and natural gas, crown reserve	5	20	....	....	25	....	....
Coal, provincial lands	620	354	1	3	513	108	357
Coal, school lands	60	25	....	....	46	7	32
Quarrying	45	46	....	....	44	....	47
Quartz mining	4	....	....	....	....	....	4
Salt	1	1	....	....	1	....	1
Bituminous sands	4	2	....	....	4	....	2
Miscellaneous	1	3	....	....	1	....	3
Dredging	32	6	....	....	38	....	....
TOTALS	19,635	8,878	45	266	22,809	256	5,759

ACREAGE CONTAINED IN ABOVE LEASES

Type of Lease	Active at date of transfer	Issued	Reinstated	Cancelled	Renewed	Active at March 31st, 1940
Petroleum and natural gas, provincial lands	2,263,076	1,517,540	9,456	2,717,281	19,714	1,053,077
Petroleum and natural gas, school lands	191,726	141,045	1,183	254,898	420	78,636
Petroleum and natural gas, crown reserve	6,160	22,561	.....	28,721	.....	.....
Coal, provincial lands	236,984	113,538	40	170,207	75,965	104,390
Coal, school lands	9,570	2,393	.....	5,803	1,464	4,696
Quarrying	1,675	578	.....	966	.....	1,287
Quartz mining	182	.....	.....	.....	.....	182
Salt	200	6,721	.....	200	.....	6,721
Bituminous sands	3,952	2,063	.....	5,451	.....	564
Miscellaneous	3,560	323	.....	10	.....	3,873
TOTALS	2,717,085	1,806,762	10,679	3,183,537	97,563	1,253,426
Dredging (in miles)	145	22	.....	167	.....	.....

STATEMENT OF BUSINESS TRANSACTED, 1939-40

PETROLEUM AND NATURAL GAS

	Number	Acres
Leases issued on provincial lands	870	222,687.83
Leases cancelled and relinquished on provincial lands	1,256	232,417.21
Leases reinstated on provincial lands	37	9,455.77
Leases issued on school lands	106	24,430
Leases cancelled and relinquished on school lands	131	24,213.75
Leases reinstated on school lands	7	1,183
Reservations granted	23	475,881
Reservations cancelled and relinquished	21	363,012
Fees, rentals and bonuses collected	$377,805.30	
Royalties collected	523,306.31	
TOTAL	$901,111.61	

COAL

	Number	Acres
Leases issued on provincial lands	20	1,587
Leases cancelled and relinquished on provincial lands	24	302.55
Leases reinstated on provincial lands	1	40
Leases issued on school lands	....	....
Leases cancelled and relinquished on school lands	1	29.88
Domestic permits issued	22	
Fees and rentals collected	$116,187.52	
Royalties collected	176,615.53	
TOTAL	$292,803.05	

QUARRYING

	Number	Acres
Leases issued	9	River bars
Leases cancelled and relinquished	11	212.75
Sand, stone and gravel permits issued	17	
Fees and rentals collected	$ 1,335.15	
Royalties collected	4,217.18	
TOTAL	$ 5,552.33	

DREDGING

	Number	Area in Miles
Leases issued	....	.....
Leases cancelled and relinquished	2	9.50

MISCELLANEOUS

	Number	Acres
Bituminous sands leases issued	1	255.10
Bituminous sands leases cancelled	1	1,807.70
Permits to collect bitumen renewed	1	
Quartz mining claims granted	2	
Quartz mining certificates of work issued	1	
Powers of Attorney (quartz) filed	....	
Placer claims granted	20	
Powers of Attorney (placer) filed	7	
Bar-diggings permits issued	....	
Fees, rentals and royalties collected	$9,392.02	

ASSIGNMENTS REGISTERED, 1939-40

Nature	Number
Petroleum and natural gas, provincial lands	567
Petroleum and natural gas, school lands	78
Coal, provincial lands	33
TOTAL	678

PETROLEUM AND NATURAL GAS

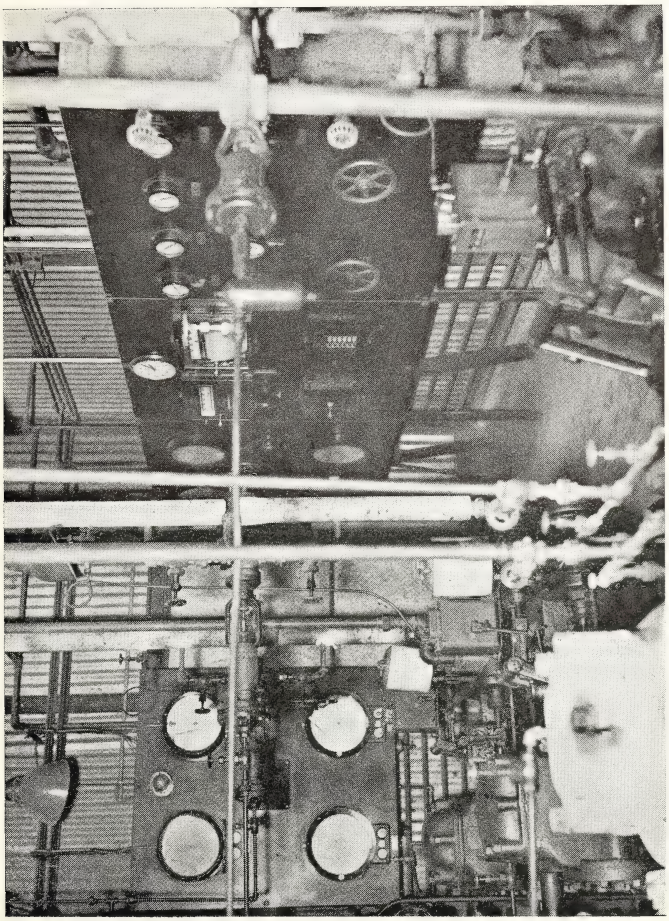
Development of Leases.—Provision is made in the regulations for approved expenditures incurred in actual development of petroleum and natural gas rights, acquired under lease or reservation, to be accepted in satisfaction of rentals which should otherwise have been paid in cash. During the fiscal year under review, rentals due the Crown amounting to $306,596.53 were satisfied from such expenditures and so reduced the revenue of the Division by that amount. The total rental revenue received in cash was $377,805.30, which, added to the expenditures accepted in lieu of rental, makes a total of $684,401.83 chargeable to fees, rentals and bonuses.

Disposal by Public Tender.—Bonuses amounting to $4,401.17 were received during the fiscal year under the provision of regulations for the disposal by auction of petroleum and natural gas rights formerly comprised in cancelled leases. Of this amount, $4,317.57 was bid and paid on provincial lands' rights and $83.60 on school lands' rights.

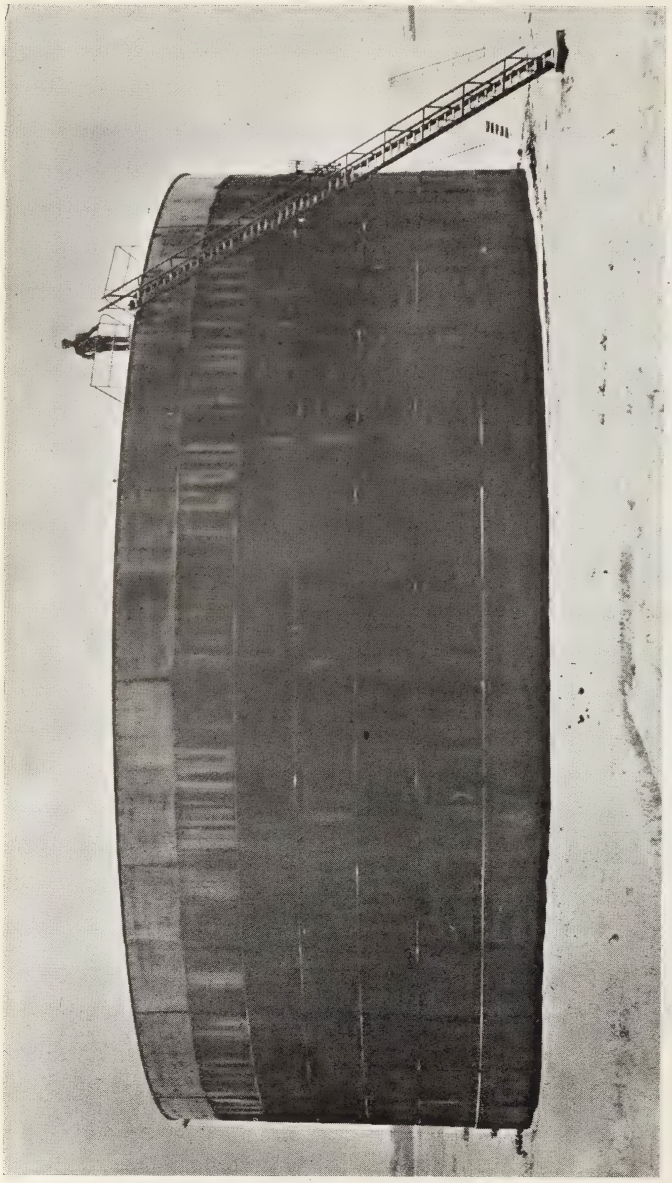
Number and Area of Leases.—During the year 976 petroleum and natural gas leases were issued covering an area of 247,118 acres, of which 870, comprising 222,688 acres, represented rights on provincial lands and 106, comprising 24,430 acres, rights on school lands.

The province issued since October 1st, 1940 a total of 8,441 leases, comprising 1,681,147 acres, and the Department of the Interior at Ottawa transferred to the province 18,868 leases, comprising 2,460,962.48 acres.

Of these leases, 5,313 are now active, comprising an area of 1,131,713 acres, of which leases on provincial lands total 4,828 and those on school lands 485, containing respectively 1,053,077 and 78,636 acres.



Part of control room, Gas and Oil Products Absorption Plant
Photograph by Lane's Studio, High River, Alberta



Gas and Oil Products, 80,000 barrel tank for field storage

Photograph by Lane's Studio, High River, Alberta

Petroleum and Natural Gas Reservations.—Regulations governing the reservation for geological examination of petroleum and natural gas rights, the property of the Crown, were established by Order in Council, No. 1026/37, dated the 7th day of September, 1937. At the beginning of the period under review there were 20 reservations in force covering 314,375 acres. During the year 23 additional reservations were made, comprising 475,881 acres and 21 reservations terminated covering an area of 363,012 acres. There are now active under these regulations 22 reservations on 427,274 acres.

Coal

Leases are now granted only for the extension of existing operations or for small mines where the local market cannot be economically supplied from existing mines in the vicinity. In this fiscal year, 25 applications were considered and 20 leases issued comprising 1,587 acres. There are now active 389 coal leases comprising 109,086 acres.

During the current fiscal year the following quantity of coal, subject to Crown royalty, was mined:—

	Tons
Provincial lands' leases	2,583,447
School lands' leases	190,949
Coal lands' and mineral sales	650,107
TOTAL	3,424,503

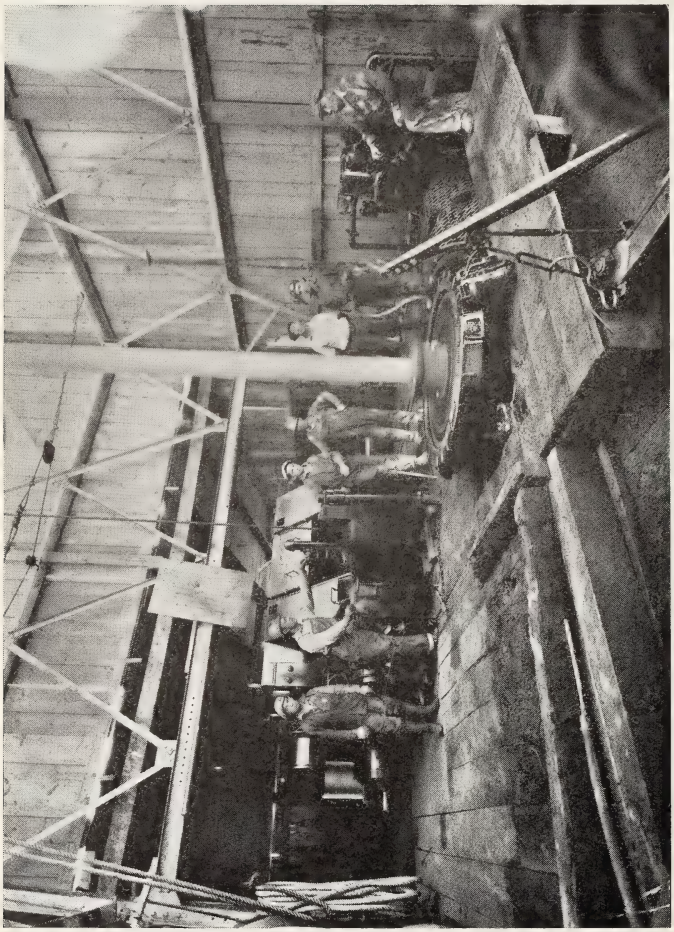
Crown royalties collected on coal since April 1st, 1907, are as follows:—

Fiscal Year	Royalty Paid	Fiscal Year	Royalty Paid
1907-1908	$ 7,621.67	1925-1926	$ 188,277.94
1908-1909	5,322.39	1926-1927	218,150.10
1909-1910	153,559.98	1927-1928	231,757.96
1910-1911	218,932.88	1928-1929	254,616.27
1911-1912	104,894.55	1929-1930	248,083.71
1912-1913	142,997.79	1930-1931	105,126.51
1913-1914	147,198.75	1931-1932	145,170.33
1914-1915	104,489.77	1932-1933	143,800.01
1915-1916	67,190.17	1933-1934	193,527.82
1916-1917	149,447.82	1934-1935	176,122.43
1917-1918	144,634.75	1935-1936	186,691.23
1918-1919	175,687.66	1936-1937	193,810.33
1919-1920	181,641.80	1937-1938	173,386.26
1920-1921	190,545.80	1938-1939	152,341.01
1921-1922	185,436.88	1939-1940	176,615.53
1922-1923	171,723.83		
1923-1924	210,389.53	TOTAL	$5,298,172.56
1924-1925	148,979.10		

Coal for Domestic Use.—Permits to mine coal on provincial lands by strip-mining methods for domestic use are issued on payment of a fee of one dollar and royalty at the rate of ten cents a ton. During the year 22 permits were issued authorizing an extraction of 392 tons, none of which could be bartered or sold. All permits expire on the 31st of March following the date of issue, but are subject to renewal from year to year providing the permittee complies with the requirements of the regulations and submits an application for renewal prior to the expiry date.

Quarrying

Quarrying leases on Crown lands are issued under the regulations for limestone, granite, slate, marble, marl, gravel, sand, clay, volcanic ash or any building stone at a yearly rental of $1.00 an acre and a royalty of five cents a cubic yard. The royalty charge does not apply to leases issued to railway companies for the maintenance of roadbeds or to leases issued to cities, towns or municipalities requiring material for construction or maintenance of municipal works or improvements. During the fiscal year, nine quarrying leases to take gravel from the Saskatchewan River were issued. Approximately 155,000 cubic yards of sand,



Drilling. Derrick floor with draw works controlling feed. Separate engine operates rotary table
Photograph by Lane's Studio, High River, Alberta

gravel, limestone and shale were extracted from Crown lands during the calendar year of 1939.

At the close of the fiscal year, 47 leases were active covering an area of 1,287 acres.

Sand, Stone and Gravel Permits.—Permits of this nature are issued on the beds of rivers and lakes at a fee of $2.50 and a royalty of five cents a cubic yard. A permit does not give the exclusive right to remove sand, stone or gravel from the portion of the river or bed of the lake it covers. During the fiscal year 17 permits were issued authorizing the extraction of 4,705 cubic yards but some of these are now cancelled as permits expire on the 30th day of November following the date of issue.

Dredging

No dredging operations were conducted in the province during the year and the two dredging leases referred to in the previous report were cancelled.

Quartz

No powers of attorney were filed by prospectors who intended undertaking prospecting trips but two claims were recorded during the year and one certificate of work was issued. In order to procure a certificate of work on an existing claim the holder must submit evidence that he has carried out actual development work to the value of $150.00 or make payment of that amount to the Mining Recorder. One claim for the recovery of bentonite was in operation and royalty of $66.19, representing 2½ per cent of the value of the product, was collected.

If the regulations have been fully complied with for five years, the holder of a claim may apply for a lease for a period of twenty-one years. At present 4 leases of this nature covering 181.8 acres are active. These were issued originally by the Department of the Interior at Ottawa.

Placer

Towards the close of the fiscal year, that is in February and March, 1940, discoveries of placer gold were made on the McLeod and Athabaska rivers with the result that nine claims were staked and recorded in township 55, ranges 13 and 14, west of the 5th meridian, and nine in township 63, range 3, west of the 5th meridian. The claim on the Athabaska River reported extraction of 12.9 ounces of gold and was renewed. A new claim was recorded on the Peace River making a total of 20 placer grants issued during the year.

Bituminous Sands

One lease was issued covering 255.10 acres in township 89, range 9, west 4th meridian, and the lessee is required to undertake certain development work. In the McMurray district a lease of 308.71 acres is active from the previous year and one lease of 1,807.70 acres was cancelled. Two companies with existing plants are carrying out production experiments on lands held by them under special development agreements.

Sodium Chloride (Common Salt)

A salt lease was issued in 1937 covering 6,720.82 acres in townships 88 and 89, ranges 8 and 9, west of the 4th meridian.

Two test wells and two production wells have been drilled on this lease. The first test well was drilled in the year 1936 to a depth of 898 feet, proving salt from 694 feet to 893 feet, and the first production well drilled in 1937 to a depth of 702 feet. In 1939 a further test was made to a depth of 952 feet

disclosing salt from 723 feet to 934 feet and in 1940 a second production well was completed at 696 feet.

A considerable investment of private capital has already been made in experimentation, production and plant construction in the development of the salt industry near Waterways, but in order to take advantage of a greater available market, the salt plant was enlarged and remodelled this year. A vacuum evaporator, two grainer evaporators and modern machinery for drying, handling and packing were installed. Production from the new well and equipment began in February, 1940. The total production of the fiscal year was 2,508 tons, subject to Crown royalty of twenty cents a ton.

Drilling. Rotary table in action

Photograph by Don Coltman

Miscellaneous Leases

Two leases are in force for the removal of sodium sulphate (glauber salts) occurring in a comparatively pure condition in certain sloughs and shallow lakes. The leases were issued for a term of five years and contain an area of 32.56 acres. Production for the year amounted to 40 tons.

Special Permits

The annual permit for the collection of bitumen issuing from a well in the Peace River District was again renewed and during the year 584 gallons were secured.

PETROLEUM AND NATURAL GAS

Drilling Activity and Statistical Data

(Development in 1939-40)

The fiscal year 1939-40 established a new oil production record in its total of 8,039,279 barrels, an increase of 1,387,958 over the preceding fiscal year.

The following review of drilling activity and statistical data covering this period is presented.

TURNER VALLEY COMPLETIONS

Arranged by date of reaching final depth during the fiscal year (west of the 5th meridian)

Well	*Location*	*Depth*	*Date Started*	*Date Completed*
N.W.H.B. 1	*16 of 8, 18-2	7494′	Dec. 2, 1938	April 12, 1939
Royalite 35	7 of 27, 20-3	7381′	Aug. 13, 1938	April 15, 1939
Harris 1	13 of 9, 18-2	7244′	Dec. 11, 1938	April 26, 1939
East Crest 4	8 of 6, 19-2	8040′	Mar. 21, 1938	May 9, 1939
York 2	6 of 20, 18-2	8027′	Nov. 2, 1938	May 24, 1939
Okalta 8	6 of 16, 18-2	7121′	Feb. 18, 1938	May 28, 1939
Oil Ventures 1	14 of 32, 18-2	7807′	Dec. 29, 1938	June 17, 1939
Harris 2	15 of 32, 18-2	7564′	Dec. 22, 1938	June 19, 1939
British Colonial 1	5 of 32, 18-2	8364′	Apr. 28, 1938	June 24, 1939
Anglo Canadian 5	8 of 31, 18-2	8639′	Dec. 27, 1938	July 2, 1939
Winalta 1	15 of 5, 19-2	7253′	Jan. 10, 1939	July 10, 1939
Calwin 1	1 of 5, 19-2	7257′	Jan. 2, 1939	July 16, 1939
Royalite 39	3 of 29, 18-2	8039′	Feb. 10, 1939	July 23, 1939
Royalite 40	4 of 5, 19-2	7880′	Mar. 3, 1939	July 22, 1939
Anglo Canadian 4	6 of 17, 18-2	8303′	Jan. 18, 1939	July 25, 1939
Royalite 41	1 of 17, 18-2	7415′	Apr. 14, 1939	Aug. 2, 1939
Extension 2	11 of 17, 18-2	8254′	Feb. 12, 1939	Aug. 21, 1939
Anglo Canadian 6	3 of 17, 18-2	8334′	Feb. 6, 1939	Aug. 29, 1939
Royal Canadian 3	12 of 29, 18-2	8667′	Feb. 28, 1939	Oct. 2, 1939
Royalite 42	4 of 32, 18-2	8491′	Apr. 30, 1939	Oct. 5, 1939
Anglo Canadian 8	11 of 7, 19-2	7788′	Jan. 31, 1939	Oct. 19, 1939
Argus 1	14 of 25, 19-3	7384′	May 4, 1939	Oct. 19, 1939
Okalta 7	3 of 16, 18-2	7425′	Jan. 23, , 1938	Nov. 19, 1939
N.W.H.B. 2	9 of 8, 18-2	7591′	July 31, 1939	Dec. 2, 1939
Royalite 43	2 of 22, 20-3	8800′	May 10, 1939	Dec. 4, 1939
Royalite 45	14 of 5, 19-2	7486′	Aug. 11, 1939	Dec. 23, 1939
Command 2	11 of 29, 18-2	8784′	Sept. 7, 1939	Dec. 29, 1939
Royalite 46	2 of 17, 18-2	7994′	Aug. 8, 1939	Dec. 30, 1939
Home-Millarville 4	9 of 28, 20-3	8334′	June 30, 1939	Jan. 13, 1940
Anglo Canadian 7	9 of 31, 18-2	8391′	Aug. 8, 1939	Feb. 1, 1940
Southwest 3	3 of 8, 19-2	7167′	Oct. 15, 1939	Feb. 7, 1940
Home-Millarville 3	1 of 33, 20-3	8311′	July 19, 1939	Feb. 21, 1940
Vanpeg 1	9 of 5, 19-2	7072′	Aug. 15, 1939	Mar. 5, 1940
Arrow 1	16 of 13, 19-3	8102′	Sept. 14, 1939	Mar. 17, 1940

*Note:—Legal subdivision 16 of section 8, township 18, range 2.

As on March 31, 1940, completions in Turner Valley stood as follows:—

Gas wells drilled to limestone completion	116
Gas wells abandoned	13
	103
Completed as oil wells, later turning to gas wells	2
Capable of producing	105
Oil wells completed as producers, less 2 transferred to gas well list	104
Deduct as not yet on production at end of March	1
Deduct as not commercial	2
Producing	101

Note that not all of the above gas wells are actually produced, and those produced were in many cases operated intermittently.

Rock bits. New one ready to put on; old one worn out. Above the limestone such a bit cuts 40 or 50 feet of hole before wearing so much as to require rejection. In the limestone a bit averages 10 feet of hole but may make less than one foot in hard bands

Photograph by Don Coltman

Drilling Activity Outside Turner Valley

Dina Field.—Highwood Blackfoot 1, in 1 of 36, 47-2 w. 4, was drilled to 2,330, in the top of the Palaeozoic and abandoned when no oil or gas was obtained.

Wainwright Field.—Montreal Alberta, in 2 of 15, 45-7 w. 4 was deepened to 4,558 in a test of the Palaeozoic.

Lloydminster.—Shaw 1, in 8 of 26, 49-1 w. 4 was completed as a gas well, depth 1,754.

Shaw 2, in 10 of 25, 49-1 w. 4 was completed at 1,756 as an oil well.

Vermilion.—J. L. Graham, Norton No. 1, renamed Battleview 2, in 13 of 20, 50-5 w. 4 was completed as an oil well at 1,858, and a bailing test was made.

J. L. Graham, Shane No. 1, in 1 of 14, 49-6 w. 4, was completed as a gas well and closed in pending marketing arrangements.

Del Bonita.—Terminal 2, in 13 of 18, 1-21 w. 4 was completed at 5,212 with small oil production and considerable gas.

Aldersyde Area.—Ranchman's No. 1 in 16 of 13, 20-29 w. 4 continued intermittent fishing operations.

Bragg Creek.—Marjon 5, in 1 of 5, 22-4 w. 5, was drilled to 2,260 and abandoned for lack of funds.

Brazeau.—Home-Brazeau 1, in about 16 of 7, 43-17 w. 5 (Unsurveyed territory), reached 7,039 at the end of March and continued drilling.

Brooks.—Tilley 1, in 13 of 19, 17-12 w. 4, was completed at 1,230 as a small gas producer for local use.

Cardston.—Franco 2, in 1 of 10, 3-26 w. 4, was drilled to 1,175 and the rig skidded due to mechanical difficulties. New hole was made to 1,467 before operations were suspended.

Ghost River.—Grease Creek 1, in 2 of 13, 29-7 w. 5, was continued to a depth of 7,011 when fishing operations became necessary, and the well was abandoned after unsuccessful attempts to clear the hole.

Highwood.—Alberta Pacific Consolidated, Sheppard Creek 1, in 6 of 7, 16-2 w. 5, was drilled to 4,331, with operations continuing.

J. & J. 1, in 9 of 12, 16-3 w. 5, was started, but drilling stopped at shallow depth, about 60 feet.

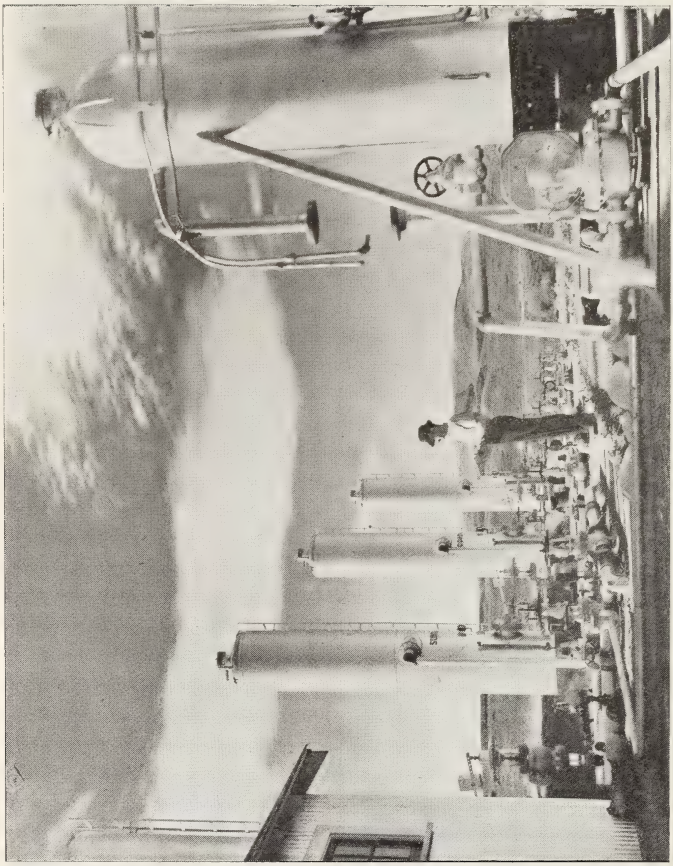
Jumping Pound.—Brown Consolidated (Rabson) 1, in 3 of 36, 24-5 w. 5, was drilled to 6,885 and abandoned on finding unfavourable geological conditions at depth.

Lundbreck.—Maxmont 1, in 10 of 20, 9-2 w. 5 reached a depth of 8,495. Fishing operations were in progress at the end of the period.

McMurray.—Industrial Minerals 4, in 7 of 10, 89-9 w. 4, was started as a second hole for producing salt. At 103, mechanical trouble made it necessary to skid the rig, and hole 4A was eventually completed at 924 feet.

Medicine Hat.—Servicing operations and abandonment of an old well were the only activities in gas development.

Milk River.—Range 1 in 9 of 29, 1-11 w. 4, also known as Rogers Imperial, which supplied gas for Montana consumption over a period of years, reached a stage of depletion about the middle of 1939, where it was no longer possible to supply the pipeline, and gas deliveries ceased. The pipeline was later lifted. Abandonment operations have not yet been undertaken.



Battery of separators. Production from several wells taken care of at a central place

Photograph by Don Coltman

Pouce Coupe.—Guardian 1, in 7 of 7, 80-12 w. 6 reached a depth of 5,459 before operations were suspended for the winter.

Spring Coulee-Del Bonita.—Lyons McIntyre 1, in 14 of 19, 3-21 w. 4, resumed operations and reached a depth of 4,588 at the end of the period, with drilling proceeding.

Steveville-Princess—Anaconda 1, in 15 of 9, 22-12 w. 4, was drilled to 3,727, finding water in the Palaeozoic. It was later abandoned.

Anglo Canadian 2, in 4 of 14, 20-11 w. 4, was drilled to 3,262 and tested. A large gas flow was developed at the top of the Palaeozoic with some oil showings. After testing the gas was shut off pending further developments.

Rainy Hills 1, on the line between 5 and 6 of 34, 19-10 w. 4, was drilled by Anglo Canadian and others to 3,500 feet. A large gas flow with oil showings was found at the top of the Palaeozoic with a little water somewhat farther down. The hole was cemented at the bottom to hold the gas, and operations were suspended pending further developments.

Standard Oil of British Columbia, Princess 1, in 13 of 22, 20-12 w. 4, reached 5,258 at the end of the fiscal year, and later drilled to 6,155, for a test of the entire Palaeozoic column. Favourable oil showings were encountered but the well was not a commercial oil producer. High pressure gas wrecked the rig at one stage within the period, and again later. The hole was eventually cemented off pending further developments.

Stony Indian Reserve.—Roxana 1, in 5 of 18, 24-7 w. 5 (outside the reserve), was drilled to 6,502 and abandoned on striking water.

Sundre.—Altoba Clearwater 1 in unsurveyed territory, about 5 of 31, 34-9 w. 5, was drilled to 3,052 as a diamond drill test. Some showings of oil were obtained, but the test was abandoned after water was encountered. Some valuable geological information was obtained.

Taber.—Border Petroleums drilled deeper in the CWNG Barnwell 6, in 5 of 32, 9-17 w. 4, reaching a depth of 3,579. Some oil and gas showings were found in the Sunburst sand, but water was also encountered and operations were suspended.

North Taber Royalties, in 7 of 10, 11-15 w. 4, was deepened to 3,170 and later abandoned.

Waite Valley.—National 3, in 4 of 25, 20-4 w. 5, was drilled to 7,626 and abandoned on encountering faulting to younger formation which would make the depth of the limestone so low as to be unfavourable for oil production.

Willow Creek.—Anglo Canadian-Savanna Creek 1, in 5 of 20, 14-4 w. 5, was drilled to 3,375 and abandoned. A little water was found in the Dalhousie sand, with only small showings of oil higher in the Blairmore formation.

Drilling Progress

During the fiscal year 1939-40 the following footage was drilled:—

	Turner Valley	Foothills west of Turner Valley	Rest of Province	Total
April-June	67,825	4,102	8,755	80,682
July-September	64,132	10,773	23,853	98,758
October-December	71,220	10,267	14,188	95,675
January-March	78,465	2,041	5,287	85,793
TOTALS	281,642	27,183	52,083	360,908

Laboratory. Examination of rock cuttings from rotary drill

Photograph by Don Coltman

FEET OF HOLE DRILLED

Calendar Year	Turner Valley	Foothills west of Turner Valley	Rest of Alberta	Total
Prior to 1927	115,391	38,969	493,272	647,630
1927	53,340	6,898	24,728	84,996
1928	111,160	2,930	53,450	167,540
1929	240,020	49,997	80,580	370,597
1930	123,583	22,615	83,136	229,334
1931	61,939	4,244	50,369	116,552
1932	13,096	845	18,680	32,621
1933	51,806	1,743	18,300	71,849
1934	78,278	4,093	13,853	96,221
1935	27,462	7,242	25,769	60,473
1936	52,470	8,208	37,937	98,615
1937	245,531	8,851	37,572	291,959
1938	303,112	8,968	51,212	363,292
1939	281,274	25,891	67,122	374,287

NUMBER OF WELLS PRODUCING OIL

Fiscal year, 1939-40

Turner Valley limestone oil wells	101	
Turner Valley limestone gas wells	58*	
Turner Valley shallow crude wells	3	
		162
Red Coulee		7
Wainwright		5
Miscellaneous—Dina	2	
—Moose	1	
—Lloydminster	1	
—Vermilion	1	
—Del Bonita	2	
		7
TOTAL		181

OIL PRODUCTION IN ALBERTA

Fiscal year, 1939-40

	Barrels	Value of Sales
Turner Valley, oil wells, separators	7,633,889	$9,063,160
Turner Valley, gas wells, separators	78,098	114,512
Turner Valley, natural gasoline, plants	284,562	545,259
Turner Valley, shallow crude	8,094	10,984
Red Coulee	12,590	9,159
Wainwright	11,181	9,859
Miscellaneous	10,865	7,709
TOTALS	8,039,279	$9,760,642

	Barrels
Total oil production 1914 to March 31, 1939	21,736,885
Produced 1939-40	8,039,279
TOTAL	29,776,164

OIL USED IN ALBERTA IN 1939

(Quantities in Barrels)

Stock, January 1st, 1939—		
Refined		539,610
Crude†		359,171
Produced in Alberta		7,594,411
Imports except lubricants—		
Refined products	433,544	
Crude	154,631	
		588,175
To account for		9,081,367
Exports, not including oil in transit through Alberta—		
Refined	705,167	
Crude†	3,278,590	
		3,983,757
Alberta Sales—		
Motor fuel	2,515,867	
Bunker fuel	440,104	
		2,955,971
Stocks, December 31st—		
Refined	824,245	
Crude†	503,826	
Bunker fuel	121,918	
		1,449,989
Difference, refining and handling losses, coke, asphalt, etc.		691,650
Accounted for		9,081,367

*Not including wells which were known to produce only gas.
†May include some bottoms.

No. 1 Tank Farm with battery of separators

Photograph by Don Coltman

SUMMARY OF OIL PRODUCTION IN ALBERTA
Quantities in barrels of 35 Imperial Gallons

Year	TURNER VALLEY Limestone			Shallow	RED COULEE WAIN-WRIGHT		MISC.	
	Oil Wells	Gas Wells	Natural Gasoline	Crude	Light Crude	Heavy Crude	Heavy Mostly Crude	Total
1914-21	.....	.....	.....	56,599	.....	.....	.....	56,599
1922	.....	.....	9,294a	6,559	.....	.....	.....	15,853
1923	.....	.....	8,060	1,943	.....	.....	.....	10,003
1924	.....	.....	13,205	844	.....	.....	.....	14,049
1925	.....	156,766	8,951	2,926	.....	.....	.....	168,643
1926	.....	203,725	7,283	2,609	.....	5,981	.....	219,598
1927	.....	284,416	5,854	38,808	.....	2,526	529	332,133
1928	.....	410,623	.....	70,734	.....	7,952	222	489,531
1929	.....	908,741	.....	72,480	1,328	12,332	4,271	999,152
1930	62,539	1,251,500	.....	50,545	53,917	9,739	5,604	1,433,844
1931	85,258	1,260,431	.....	26,936	65,066	7,142	10,362	1,455,195
1932	60,494	793,622	.....	21,694	34,877b	6,935	.....	917,622
1933	55,213	711,891	185,781	23,822	31,057b	5,276	.....	1,013,040
1934	78,624	717,818	414,324	21,896	20,989	11,779	510	1,265,940
1935	124,893	586,747	496,681	18,691	20,536	14,638	1,564	1,263,750
1936	319,845	351,914	602,360	13,119	17,937	14,957	310	1,320,442
1937	1,916,110	183,353	657,169	10,589	13,790	13,559	2,338	2,796,908
1938	6,029,010	121,439	531,434	9,192	13,818	12,985	24,161	6,742,039
1939	7,180,161	70,650	296,787	8,431	13,022	11,624	13,736	7,594,411
TOTAL	15,912,147	8,013,636	3,237,183	458,417	286,337	137,425	63,607	28,108,752

NOTE.—The division between oil wells and gas wells in Turner Valley limestone is only approximate.

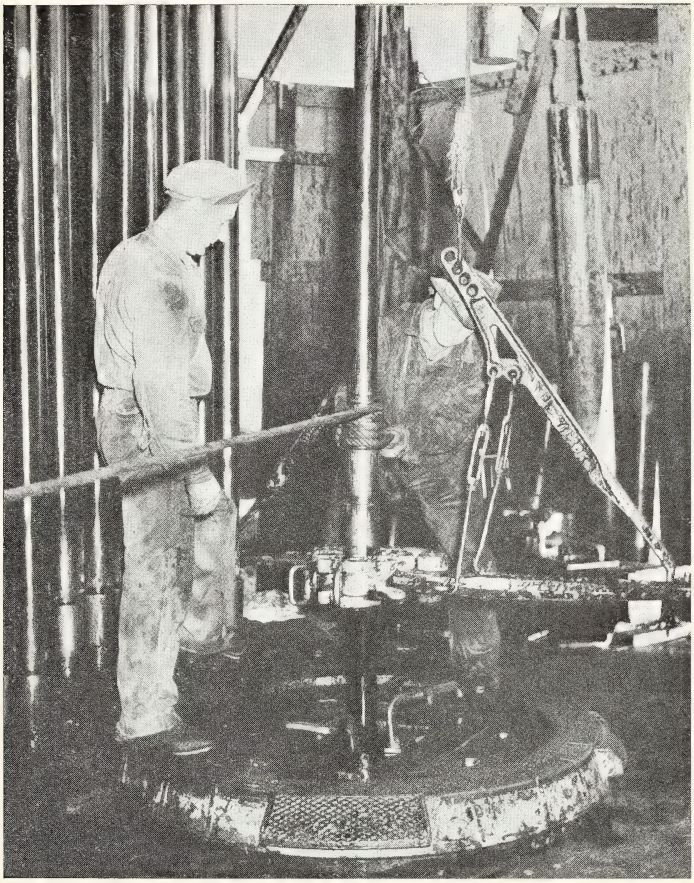
a. From 1922 to 1927, natural gasoline was derived from horizons above the limestone; from 1933 onward, from the limestone.

b. Includes some light crude from miscellaneous localities.

ALBERTA OIL PRODUCTION

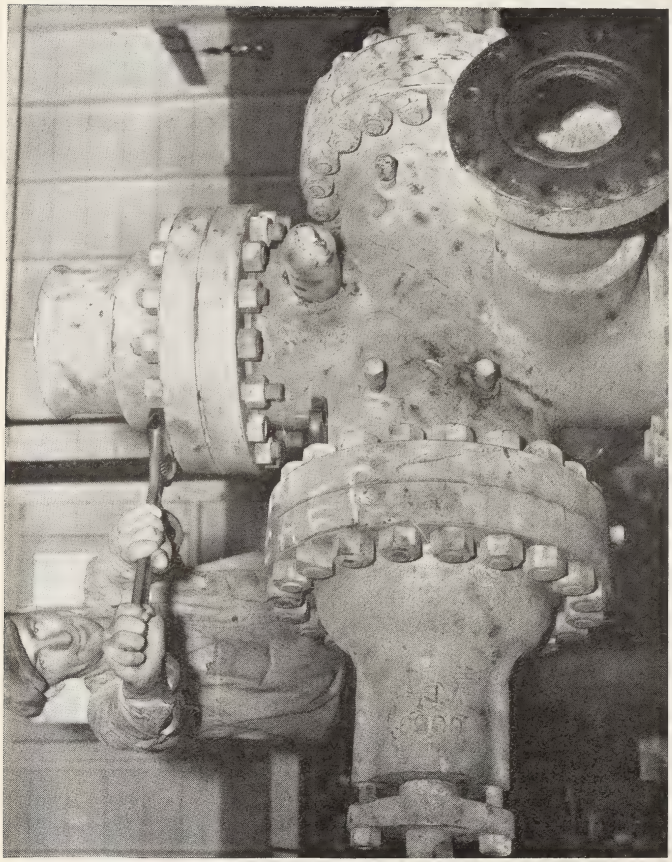
Company Turner Valley Limestone Oil Wells	December 1939	Calendar Year, 1939	Total to end of 1939
Anglo-Canadian 1	6,561	89,205	105,080
Anglo-Canadian 3	11,987	147,208	147,208
Anglo-Canadian 4	7,250	54,899	54,899
Anglo-Canadian 5	7,626	50,958	50,958
Anglo-Canadian 6	15,145	64,911	64,911
Anglo-Canadian 8	1,174	6,393	6,393
Anglo-Canadian Associated Companies:			
Argus 1	1,693	3,176	3,176
Coronation 1	5,668	111,277	188,874
Extension 1	7,569	162,294	162,294
Extension 2	7,075	59,980	59,980
Firestone 1	1,812	53,079	188,685
Foundation 1	1,533	38,957	229,988
Frontier 1	6,178	160,504	397,648
Monarch 1	2,855	49,088	210,153
Prairie 1	4,009	130,438	434,585
Spy Hill 1	948	18,385	43,107
Sundance 1	5,318	155,363	334,006
Westflank 1	2,517	35,139	86,643
Westflank 2	1,492	44,336	133,265
Westflank 3	1,306	33,439	93,425
Barsac 1	3,613	66,055	133,132
British Colonial 1	7,249	65,678	65,678
Brown 1	3,207	82,228	330,043
Brown 2	3,921	102,480	276,195
Brown 4	3,408	77,347	176,483
Brown 5	2,968	54,615	76,450
Brown Associated Companies:			
B. and B. 1	1,757	33,326	327,103
Four Star 1	3,041	66,783	199,655
Intercity 1	2,549	45,403	48,528
Royal Crest 1	3,052	61,218	161,705
Three Point 1	1,379	26,450	88,087
Turner Valley Royalties 1	2,353	51,122	548,378
United 5	4,319	107,718	194,505
Vulcan-Brown 1	8,238	186,250	371,499
Westside 1	2,748	38,655	197,696
Calwin 1	3,159	19,064	19,064
Command 1	5,740	112,935	122,663
Commoil 1	4,285	145,593	501,650
Commoil 2	4,226	113,804	170,389
Consolidated 1	7,238	138,997	171,691
D. and D. 1	4,386	67,110	67,110
Davies 1	4,951	92,893	184,661

Company Turner Valley Limestone Oil Wells	December, 1939	Calendar Year, 1939	Total to end of 1939
Davies 2	3,923	84,775	491,069
Davies 4	5,268	109,969	133,869
East Crest 4	1,052	16,906	16,906
Globe 1	4,055	59,714	106,768
Granville 1	2,567	39,774	112,205
Harris 1	3,957	43,442	43,442
Harris 2	5,154	74,503	74,503
Home-Millarville 2	12,582	221,082	221,082
Mercury Royalties 1	1,748	43,080	80,535
Model 1	3,257	36,801	492,398
Model 2	627	6,004	47,885
Model-Spooner-Reward 2	1,654	78,145	209,907
National 1	2,101	45,754	251,006
National 2	4,081	58,683	104,414
Northwest-Hudson's Bay 1	6,550	141,878	141,878
Northwest-Hudson's Bay 2	5,115	5,115	5,115
Oil Ventures 1	5,011	59,295	59,295
Okalta 7	5,726	5,726	5,726
Okalta 8	6,292	80,377	80,377
Pacific 1	5,519	120,873	294,355
Pacific 2	4,862	105,857	174,471
Pacific 3	5,471	126,695	135,383
Richwell 1	3,522	76,446	103,029
Royal Canadian 1	4,872	100,393	257,805
Royal Canadian 2	6,495	174,563	207,725
Royal Canadian 3	7,309	30,410	30,410
Royalite 28	3,200	61,637	137,885
Royalite 29	3,789	75,065	162,713
Royalite 30	7,277	162,377	281,088
Royalite 31	4,182	63,615	101,387
Royalite 32	4,844	84,568	141,378
Royalite 33	4,928	76,730	113,758
Royalite 34	3,626	39,852	46,169
Royalite 35	5,464	81,492	81,492
Royalite 36	9,567	163,759	163,759
Royalite 37	7,119	127,409	127,409
Royalite 39	7,603	62,054	62,054
Royalite 40	7,058	46,281	46,281
Royalite 41	6,805	59,521	59,521
Royalite 42	10,221	39,284	39,284
Royalite 43	9,300	9,300	9,300
Royalite 45	3,208	3,208	3,208
Sterling Pacific 4	3,807	72,327	539,186
Sterling Pacific 5	3,987	68,554	394,329
Sterling Pacific 6	5,111	71,079	303,692
Share 1	2,588	35,676	132,771
Sunburst 1	2,492	44,728	114,531
Sunset 1	5,610	152,298	397,066
Sunset 2	6,794	131,068	184,711
Winalta 1	5,855	53,126	53,126
York 1	6,152	148,155	224,983
York 2	5,288	41,024	41,024
3 gas wells while in oil list	.....	34,961	.....
TOTALS	452,148	7,180,161	.....
Gas Wells Separators	6,658	70,650	8,013,636
ABSORPTION PLANTS:			
British American	4,362	70,585	308,013
Gas and Oil Products	3,286	50,994	455,154
Royalite No. 1	11,017	106,496	1,720,350
Royalite No. 2	4,595	68,712	691,198
Earlier plants	.....	.....	62,468
All Absorption Plants	23,260	296,787	3,237,183
SHALLOW CRUDE: 4 Wells (year)	673	8,431	458,417
RED COULEE: Vanalta (7 Wells)	1,102	13,022	286,337
WAINWRIGHT: 5 Wells (year)	1,252	11,624	137,425
MISCELLANEOUS: 9 Wells (year)	525	13,736	63,607
Total Oil Production for December, 1939	485,618	.....	.....
Total Oil Production for 1939	.....	7,594,411	.....
Total Alberta Oil Production (1914 to 1939, inclusive)	.....	.....	28,108,752



Going into the hole with rotary drill pipe

Photograph by Don Coltman



Blowout preventer. For use while drilling with rotary tools. Rams can be closed on drill pipe inside, in case of blowout

Photograph by Don Colman

ESTIMATE OF WITHDRAWALS AND WASTE OF GAS FROM TURNER VALLEY

	Mcf. Drawn	Mcf. Wasted
To end of March, 1935	717,110,000	614,050,000
1935-36	90,250,000	78,020,000
1936-37	87,000,000	74,710,000
1937-38	82,119,000	59,566,000
1938-39	63,093,000	44,057,000
1939-40	46,673,000	27,981,000
TOTALS	1,086,245,000	898,384,000

GAS WELLS (except Turner Valley)
as at end of fiscal year

Medicine Hat-Redcliffe	45	Fabyan	2
Bow Island	11	Brooks	6
Foremost	6		—
Viking	21	TOTAL	95
Kinsella	3		—
Battleview	1		

Wells serving a single consumer are not included.

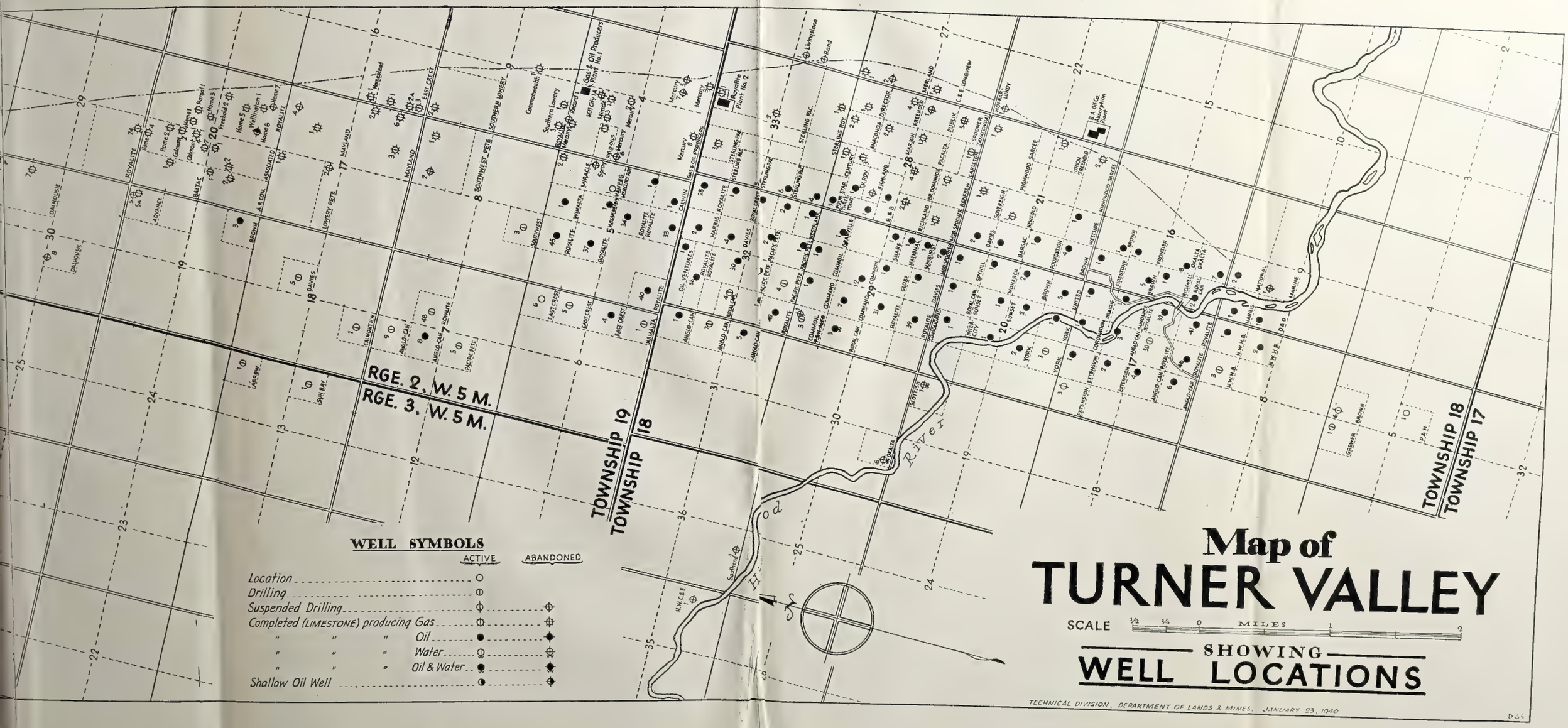
PRESSURES IN GAS FIELDS, 1939

Turney Valley—850 to 390 (No average attempted).
Viking—518 (A decline of 15 pounds from 1938).
Medicine Hat, Redcliffe—No tests. 408 pounds in 1937.

GAS CONSUMPTION IN ALBERTA, 1939-40

		Thousands of cubic feet
Calgary-Lethbridge System:		
From Foremost		0
From Turner Valley:		
Gas Company	6,446,619	
Refinery	1,219,316	
Bow Island Town	42,631	
Field use	9,980,197	
		17,688,763
From Wainwright—to town supply	104,355	
Field use (estimated)	12,000	
		116,355
Brooks		49,963
From Viking to Edmonton and towns		3,488,657
Medicine Hat		2,023,034
Redcliff		633,463
Range—exported to Montana		58,736
Red Coulee—field use including export to Montana		28,868
Miscellaneous		52,650
TOTAL		24,140,489

TOWNSHIP 21
TOWNSHIP 20
TOWNSHIP 20
TOWNSHIP 19
Quirk Creek
Sheep River
Freehold
Dalfin
T.V. Vanalta
Calmont
Calmont (Seneca)
Home Millarville
Stockmen
Turner Basin Stockmen
Foothills 4
Vimy
Spooner
Dome
United
Midwest 2
Vulcan
Dalhousie
Mt. Stephen T.V.
Royalite
Royalite Plant No. 1
Cooper-Nanton
Great West
Highland
Big Chief
Br. Dominion
Structure
Midwest
Home
Freehold 2
Home 3
Home 1
Home 2
Calmont 2
Hangal 1
Angus
Black Diamond
Outwest Pet.
Weymarn (New B. Diamond)
Canada Southern
Midfield
Alberton
Okalta
Foothills 2
Ranger
Calmont
Dome 2
ARGUS
MIDROYAL
ADVANCE
BALTAC
MODEL
PHILLIPS
ANGLO PHILLIPS
FOOTHILLS
ALTA OIL INCOMES
HOME MILLARVILLE
ROYALITE
DALHOUSIE
BRITISH DOMINION
NEW McDOUGALL SEGUR
McLeod
Widney
Bow
Spooner
Vulcan
Valley
Stauffer
Rader
Hwy. 20 a


RGE. 2, W. 5 M.
RGE. 3, W. 5 M.
TOWNSHIP 19
TOWNSHIP 18
TOWNSHIP 18
TOWNSHIP 17
Peace River
WELL SYMBOLS
ACTIVE
ABANDONED
Location
Drilling
Suspended Drilling
Completed (LIMESTONE) producing Gas
" " " Oil
" " " Water
" " " Oil & Water
Shallow Oil Well
Map of
TURNER VALLEY
SCALE
MILES
SHOWING
WELL LOCATIONS
TECHNICAL DIVISION, DEPARTMENT OF LANDS & MINES, JANUARY 23, 1940

Technical Division

REPORT OF THE SUPERINTENDENT OF THE TECHNICAL DIVISION, T. W. DALKIN

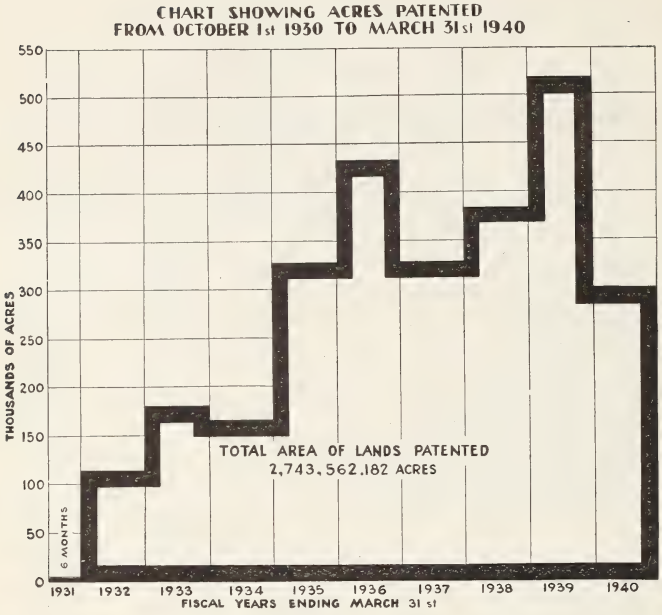
Notifications (*Land Patents*).—During the fiscal year ending March 31st, 1940, 2,097 notifications were issued covering an area of 301,431.972 acres and 152 subdivision lots, particulars of which are as follows:—

Classification	Notifications	Area (Acres)
Homesteads	1,390	215,485.824
Second homesteads	380	58,423.40
Soldier grants	49	7,631.925
School lands' sales	113	15,758.49
Sales (including lots in subdivisions)	90	1,806.353
Special grants	51	1,052.695
School lands' grants	6	20.935
Purchased homestead	1	160.00
North-west half-breed grants	1	80.00
Exchange of lands (Special Areas)	3	639.00
Release of habendum clauses	2	333.56
Canadian Pacific Railway grants	1	2.96
Northern Alberta Railways grants	1	0.40
Canadian National Railways sales (Special Areas)	1	16.19
Canadian Northern Western Railway Company grants	1	6.09
Grand Trunk Pacific Railway Company sales	2	10.47
Canadian Northern Railway Company sales	5	3.68
TOTALS	2,097	301,431.972

Details of Sales in Subdivisions	Notifications	Number of Lots
Jarvie	2	4
Coleman, Plan 6808 CU	9	12½
Barnwell, Plan 3105 Y	4	11
Johnson's Addition (Taber 3876 R)	2	1½
Canmore	5	8
Maple Leaf, Plan 7242 AI	2	3
Maple Leaf, Plan 6632 Y	1	1
Peace River Landing Settlement 7361 AH	1	1
Patricia Townsite, Plan 1217 BA	1	1
Townsite of Seven Persons, 1143 AC	1	1
Whitla, Plan 191 AG	1	4
Carbondale, Plan 232 AI	2	87
Travers, Plan 927 AY	1	4
Lac La Biche, Plan 4313 BF	1	1
Hemaruka, Plan 4934 DO	2	3
Walsh Plan, 3644 B	1	2
Sibbald, Plan 5039 AV	1	2
Bellevue, Plan 7134 AI	1	1
School Lands' Sales:		
McLennan Townsite, Plan 1394 EU	2	4
TOTALS	40	152

Homestead Entries.—The homestead policy of the Department has been discontinued with the result that only 25 entries, which were pending, were granted and checked in the usual way for reservations covering previously alienated areas in each entry.

New Surveys.—Townships 66 and 67, range 2, west of the 5th meridian: There are still isolated portions of railway rights of way in unsurveyed lands to which the Northern Alberta Railway Company has not received title in accordance with the agreement of sale of the railways between the provincial Government and the Northern Alberta Railway Company. As the provincial Government is obligated to deliver title to the railway right of way a survey was ordered along the old Edmonton, Dunvegan and British Columbia right of way through the unsubdivided area in townships 66 and 67, range 2, west of the 5th meridian, near Tieland. This survey was completed in the fall and as soon as plans are prepared title will issue accordingly to the Northern Alberta Railway Company.



Plan of East Coulee Addition, Part of legal subdivisions 9, 10, 14, 15 and 16, section 29, township 27, range 18, west of the 4th meridian: For some time squatters had built in a very haphazard fashion on the above location and a very unsatisfactory situation arose between the Empire Collieries, Limited and several of their employees who had squatted upon the land. Representations were made to the Department and it was eventually agreed, in order to assist in the creation of a more orderly plan of survey, that the Department would undertake to survey into lots and blocks the lands occupied by the squatters, to the satisfaction of the Director of Town Planning. This has been completed and plans of survey prepared accordingly.

North-west quarter of section 36, township 23, range 1, west of the 5th meridian, north and west of the Bow River: Through an application of The British American Oil Company, Limited to the City of Calgary for a pipe-line right of way at this location, it was revealed that there were no traverse notes along a certain portion of the bank of the Bow River at this point. Due to the fact that this land was unsurveyed an arrangement was satisfactorily carried out with the City of Calgary whereby this survey would be made at the expense of the city.

Upon the completion of this survey it was further agreed that the City of Calgary would transfer the surface rights of this area to the Crown according to the present title, in return for which a notification would be issued for the surface rights in favour of the city covering the land lying to the north and west of the bank of the Bow River, as established by the new plan of survey.

Many applications are received from time to time for new surveys and also for the re-establishment of old ones. An interesting application came from the Alberta Petroleum Association wherein a request was made for a re-survey of

the potentially productive area of Turner Valley due to the fact that difficulty was being experienced by the various companies in locating land because of the removal of the iron posts establishing the surveyed lands. The Department is giving consideration to this request and there is the possibility that, if funds are available, it will be undertaken next year.

Roadways.—There were 108 plans of survey of road diversions affecting 387 parcels of provincial lands recorded in this Division. Reservations were made in the records and in some cases old surveys of roadways were cancalled in order to permit of the reservation of land required for new surveys. Where roadways affected alienated lands, quit claims were obtained and compensation exacted.

New Maps.—Natural resources map: Reference was made in last year's report to the preparation of a map of the province showing the natural resources. This map has now been completed and is drawn to a scale of 20 miles to the inch. The surface resources, including agricultural, forestry, fisheries, game, water power, etc., and the mineral resources such as oil, coal, gas, bituminous sands, salt, building stone, etc., are shown in green.

In addition to the resources the map shows the air lines in blue and the highways in red. There has been an unusual demand for this map and applications for it have been received from many sources outside the province. From reports it is indicated that the natural resources map has been of tremendous value in the schools of the province and in co-operation with the Deputy Minister of Education 3,500 of these have been distributed, without charge, throughout Alberta schools.

Lloydminster-Wainwright Area: At the request of the Conservation Board large tracings were prepared covering an area of 120 townships on the scale of 5,000 feet to the inch showing oil and gas wells.

Strip Map, Turner Valley: A strip map of the Turner Valley area was prepared showing all the well locations which were noted by symbols under the following classifications:—

Location
Drilling
Suspended drilling
Abandoned
Completed (limestone) producing gas
Completed (limestone) producing oil
Completed (limestone) producing water
Completed (limestone) producing oil and water
Shallow oil wells

This map is very convenient in size and has been greatly in demand.

Plan of Turner Valley: This plan, scale two inches to the mile, was prepared by photo-lithographing the tracing from the 2,000 foot scale map originally made for the Conservation Board. To this plan were added the cross sections traced from the originals prepared by Dr. G. S. Hume of Ottawa.

The map and graph work and also the frontispiece of the booklet entitled "The History of Alberta Oil" were executed in this Division.

Agricultural Lease Map: Due to the discontinuance of the homestead policy a small map was prepared showing the areas in Alberta within which agricultural leases may be obtained under the Regulations upon open and available Crown lands.

Special Areas.—The setting up of the Special Areas records still continues to absorb a great deal of time in this Division. In order to obtain a complete standing of the lands in these areas a clerk was appointed in October to search

the records of the Land Titles Offices. At the present time he is still in Calgary and complete details have been received of the Bow West and Tilley East Special Areas and up to township 30, range 2, west of the 4th meridian in the Sounding Creek-Neutral Hills Special Area.

Each morning a list of searches arrives from Calgary and are duly entered in our records and a photostat copy of the searches is forwarded to the Secretary of the Special Areas Board.

The information received from these lists has been most useful and has enabled the Department to list numerous quarters in the name of the Crown of which no previous advice had been received upon the transfer of the Special Areas to this Department.

Missing duplicate certificates of title in the name of the Crown are being traced and recorded in the Division.

A complete list of all the lands under agreement of sale has been compiled. Many of these contracts are now invalid and it is the intention, as far as possible, to obtain the cancellation of such agreements. Where contact can be made with the purchaser who voluntarily consents to cancellation, a lease of the land is being made available for him.

Innumerable maps have been made of the Special Areas in co-operation with the Special Areas Board. Some of these maps show various ownerships and a bird's-eye picture can readily be obtained of the extent of the holdings of the Crown in the Special Areas.

With each successive year the Crown is gradually obtaining the revestment of large areas and during the period under review, approximately 790 titles were obtained in the name of the Crown through tax recovery proceedings, comprising an area of approximately 321,060 acres. At the present time there are about 1,000 final acquisition transfers covering as many parcels of land in the name of the Crown awaiting registration in the Land Titles Office under tax recovery proceedings.

There have been a number of applications from the Canadian National Railways for extra rights of way for snow fences in the Special Areas and notifications granting title to the land have been issued accordingly.

Photostat Machine.—In keeping in step with the progress of the times and in order to cope with the increasing volume of work, a modern photostat machine was installed in September and has been in continuous operation. The advantages of this machine have been recognized by the Dominion Government and by large corporations and it is used for making a great variety of copy, large or small, quickly and at low cost.

The photostat is a simple, practical machine which quickly produces photographic copies of all kinds of documents and it is particularly advantageous to this Division in connection with the reproduction of maps, plans and sketches. By means of graduated scales the photostat is quickly and mechanically adjusted to copy any class of work to original, reduced or enlarged size, within the limits of the machine.

The variety of subjects that have been copied include blue prints, book pages, charts, clippings, contracts, court exhibits, deeds, drawings, leases, ledger sheets, production data, profiles, rare documents, records, reports, specifications, statistics, tracings, testimonials and tax returns. A complete copy of the tax returns and the assessment rolls was made in connection with the setting up of the records of the Special Areas and there is no doubt that the time and labour saved in this respect alone have paid for the cost of the machine.

A particularly attractive feature in the photostating of the Special Area records was that no time whatsoever was spent on checking the copies as the

photostat cannot make a mistake but makes an exact reproduction of the original. In addition to the work that has been turned out for this Department the photostat service has been made available also to all other departments of the Government. In this particular a considerable amount of work is done and service is rendered at cost to the different departments.

At the present time it is interesting to record that correspondence is being carried on with various firms in Canada and the United States in the hope that some system may be evolved to photorecord files on 16 MM indestructible film. As in the case of many organizations the storage space required for old files is presenting quite a problem in this Department and, if such a method can be successfully introduced, film records of files would release as high as 95 per cent of our storage space for other purposes. It can be realized, therefore, that the saving in space throughout the provincial Government offices would be enormous.

Soil Surveys.—As already pointed out, the homestead policy, which was introduced by the Dominion Government, has been discontinued. There is no doubt that this means of land settlement was popular but on reflection, the records show that this method has been impracticable and expensive. The enormous number of cancellations of homestead entries is evidence of this and due to the fact that many of the homestead entrants, because of the impossibility of obtaining a living from the land, were placed upon relief rolls, it was recognized that the change in policy was inevitable. Consequently, on the 3rd of April, 1939, an Act to Amend and Consolidate the Provincial Lands Act was assented to.

Agricultural Leases are available upon surveyed provincial lands under the regulations. Before a lease can be granted the land applied for must first be inspected and at least 50 per cent of it declared suitable for agricultural purposes. The type of soil, topography and cost of clearing and breaking is reported on for each quarter section.

It was obvious that at the beginning a certain amount of delay in granting a lease under this policy must have been inevitable, but there was the satisfaction of knowing that when once a lease was granted there was the assurance that a living could be obtained from the land.

In order to deal with such applications two soil surveyors have been added to the staff of the Technical Division and all applications referred to them through the Director of Lands are dealt with as expeditiously as possible. It is expected that sufficient progress will be made upon these reports covering agricultural lease applications in order to eventually permit of certain areas of land being soil surveyed and classified. In this way when an application is received for land which has already been classified, the Department will be in a position to issue a lease without the present unavoidable delay.

It is regretted that the change from the old policy to the new is fraught with a certain amount of inconvenience to the settler awaiting the disposition of his application, but the wisdom of this change in policy will soon be recognized when a system of direct settlement can be organized, and lessees can be given some hope that with the proper initiative and a reasonable amount of labour a permanent home may be established.

Licences of Occupation.—A number of licences of occupation were issued, some of which, briefly, are as follows:—

Calgary Power Company, Limited: For the transmission of power from Rocky Mountain House to Nordegg.

H. D. Taylor, Vauxhall: For a small irrigation scheme constructed under the Prairie Farm Rehabilitation Act in section 34, township 14, range 16, west of the 4th meridian.

Andrew Lindbloom, Rio Grande: For a mill site in an unsurveyed portion of township 70, range 13, west of the 6th meridian and a portion of the bed of the Red Willow River for the purpose of operating a water wheel.

Middle Creek Water User's Association: For a reservoir in township 5, range 1, west of the 4th meridian.

B. O. Starkey, Canmore: For a private power transmission line right of way for certain lands in township 24, range 8, west of the 5th meridian to his Dude Ranch.

Hales H. Ross: Logging road through township 47, ranges 4 and 5, west of the 5th meridian.

Stenner Michelson Heie, Cold Lake: For the erection of a wharf and boathouse on the bed of Cold Lake in the northwest quarter of section 24, township 63, range 2, west of the 4th meridian.

Grease Creek Petroleum Limited; For a roadway through township 28, ranges 5 and 6 and township 29, range 6, west of the 5th meridian to a well site in the forest reserve.

An application was received on behalf of Ducks Unlimited (Canada), a non-profit corporation, for a licence of occupation upon an area of unsurveyed land which includes townships 85 to 88 inclusive in ranges 2, 3 and 4, west of the 4th meridian. The object of this corporation is the development of a wild life sanctuary and the propagation of water fowl, together with fur bearing and other animals.

An order in council was passed on the 19th day of December, 1939, authorizing the licence of occupation which was later issued and forwarded to Ducks Unlimited on the 22nd of February, 1940. At the close of the fiscal year this licence of occupation had not become effective due to the fact that the officials of Ducks Unlimited had not signed the document.

The Calgary Power Company, Limited, on the 15th of January, 1940, made application for authority to enter upon certain Crown lands in township 24, ranges 9 and 10, west of the 5th meridian for the construction of their transmission line from Exshaw to Canmore. The Company was given permission to proceed upon compliance with the regulations of the Department.

Leases.—Among the leases that were issued the following are of interest:—

The Governor and Company of Adventurers of England trading into Hudson's Bay for a portion containing 4.20 acres of unsurveyed land in township 111, range 1, west of the 5th meridian, bordering on the right bank of the Peace River, the area being required for a trading post site.

The Municipality of the Town of Grande Prairie covering the west half and north-east quarter of section 29, township 71, range 6, west of the 6th meridian, containing 483 acres, for an aviation field.

The British American Oil Company, Limited for a wholesale gasoline outlet site in the south-east quarter of section 29, township 28, range 6, west of the 4th meridian at Cereal.

Provincial Parks.—Two provincial parks were established by orders in council at the request of the Provincial Parks Board, one located in the northern and the other in the southern part of the province. The northern park was created by Order in Council, No. 1417/39, passed on the 24th of October, 1939. It covers an area of 21.80 acres, comprising portions of the south-west quarter of section 23 and the north-west quarter of section 14, township 70, range 6, west of the

6th meridian, adjoining the south bank of the Wapiti River and lying to the north of the surveyed highway.

The southern park is located south-west of Pincher Creek and was created by Order in Council, No. 293/40, passed on the 8th of March, 1940. The land comprised in this park includes a portion of the west half of section 29, township 5, range 1, west of the 5th meridian, adjoining the northerly boundary of a lake. The area in this park is 154.40 acres, more or less.

Soldier Settlement Board Lands.—Upon the transfer of the natural resources of the province certain lands were retained by Canada and administered under the Soldier Settlement Act due to the fact that charges were made against the lands in order to secure loans that were advanced under the provisions of this Act.

A large number of these charges has been withdrawn and the lands transferred from the Dominion to the Province of Alberta under the authority of the following orders in council:—

P.C., No. 1162, dated the 15th of May, 1939
P.C., No. 1551, dated the 22nd of June, 1939
P.C., No. 1553, dated the 22nd of June, 1939
P.C., No. 2833, dated the 25th of September, 1939
P.C., No. 3135, dated the 18th of October, 1939
P.C., No. 306, dated the 25th of January, 1940
P.C., No. 694, dated the 20th of February, 1940

Certain lands in the Special Areas were also transferred to the Crown by means of transfers executed by the Soldier Settlement Board.

In concluding this report it should be stated that close co-operation with other departments is being maintained. Map work, drafing and photostat work is undertaken and general information covering a variety of subjects is supplied upon request. All departments have access to and are making increasing use of the Division's stock of up-to-date maps. The map service of this Division is now definitely established and proof of this is evidenced in the demand made by the general public from far and wide.

Accounting Division

REPORT OF THE ACTING ACCOUNTANT, J. W. PATRICK

Revenue for the year for the various branches of the Department, excluding Special Areas, amounted to $1,944,098.82. This was the highest in the history of the Department and an increase of $79,386.07 over the previous fiscal year. Main increases and decreases were as follows:—

	Increase	Decrease
Homestead fees		$ 13,380.00
Timber fees, dues, rentals, etc.	$ 62,232.24	
Coal fees, rentals, etc.	4,521.78	
Coal royalties	25,731.97	
Petroleum and Natural Gas:		
Fees, rentals, etc.		31,762.31
Royalties	13,850.77	
School lands sales interest	17,202.74	
Miscellaneous	988.88	
Net revenue increase		79,386.07
	$124,528.38	$124,528.38

Total expenditures amounted to $708,605.34 as compared with $709,624.60 for the previous year. There was therefore a surplus of $1,235,493.48 on income account.

All revenue from public lands in the Special Areas was deposited in the Special Areas Trust Account. This amounted to $70,329.23 as compared with $85,178.73 for the previous year.

In this, the first year of the administration of the Special Districts, collections on taxes amounted to $283,878.81 and the sum of $46,380.68 was collected on agricultural advances. School requisitions amounting to $102,188.40 and hospital requisitions of $21,845.79 were paid to the school divisions and hospital districts from moneys borrowed from the Provincial Treasurer. The sum of $19,430.20 was also borrowed from the Provincial Treasurer for agricultural advances in the spring of 1939.

Index to Statements

A.—Statement of Receipts from all Sources.
B.—Statement of Receipts Income Account.
C.—Statement of Receipts Capital Account.
D.—Statement of Receipts, Revenue Transferred to Other Departments.
E.—Statement of Receipts and Disposition of Levied School Taxes.
F.—Statement of Receipts and Disposition of Hospital Taxes.
G.—Statement of Receipts and Disposition of Collections on Agricultural Advances.
H.—Special Areas Trust Account Statement of Receipts and Payments.
I.—Special Districts Trust Account Statement of Receipts and Payments.
J.—Special Areas and Special Districts Statement of Receipts.
K.—Statement of Receipts by Branches.
L.—Statement of Receipts School Lands Branch.
M.—School Lands Trust Fund Balance Sheet.
N.—Statement of Alberta School Lands Sales Revenue Account.
O.—Statement of Collections on Tax Recovery Lands.

STATEMENT A.

STATEMENT OF RECEIPTS FROM ALL SOURCES

From April 1, 1939 to March 31, 1940

		Gross Receipts	Refunds	Net Revenue
Income Account—Statement B		$1,972,892.63	$ 28,793.81	$1,944,098.82
Capital Account—Statement C		8,760.85	58.31	8,702.54
Transferred to other Departments, Statement D		20,670.76	782.71	19,888.05
School Lands Trust Fund		86,373.73	2,709.00	83,664.73
Special Areas and Special Districts, Statement J		418,337.80	269.74	418,068.06
Unapplied receipts carried forward (subject to refund):				
Suspense		96,360.67	35,353.52	61,007.15
Total	$79,540.79			
Less hospital taxes	18,533.64			
Statement F	$61,007.15			
Improvements		8,474.42	4,166.35	4,308.07
Land patents cultivation crop shares		404.16	.....	404.16
School lands cultivation crop shares		13,494.10	.....	13,494.10
Grazing permits, fees, rentals, etc.		3,853.04	.....	3,853.04
		$2,629,622.16	$ 72,133.44	$2,557,488.72

STATEMENT B.

STATEMENT OF RECEIPTS INCOME ACCOUNT

From April 1, 1939 to March 31, 1940

INCOME ACCOUNT:	Gross Receipts	Refunds	Net Revenue
Lands and Grazing Branch:			
Casual	$ 6,589.15	$ 192.76	$ 6,396.39
Grazing permits, fees, rentals, etc.	133,742.47	11,925.43	121,817.04
Hay permits, fees, dues, etc.	3,451.75	147.52	3,304.23
Agricultural fees, rentals, etc.	863.50	132.10	731.40
Homestead fees	360.00	.....	360.00
Improvement collection fees	2,661.42	.....	2,661.42
Filing authority fees	14.00	.....	14.00
General sales interest	1,983.27	.....	1,983.27
Cultivation fees, rentals, etc.	9,819.33	1,145.53	8,673.80
Surface rentals	2,345.19	.....	2,345.19
Timber Branch:			
Casual	1,521.05	.....	1,521.05
Timber fees, dues, rentals, etc.	363,815.10	5,549.99	358,265.11
Mining Lands Branch:			
Casual	14,951.98	75.63	14,876.35
Coal fees, rentals, etc.	111,793.81	506.76	111,287.05
Coal Mines Act sundry revenue	6,283.43	20.00	6,263.43
Coal royalties	168,805.15	2.40	168,802.75
Petroleum and Natural Gas:			
Fees, rentals, etc.	343,402.11	2,714.43	340,687.68
Royalties	408,304.20	.....	408,304.20
School Lands Branch:			
Interest on sales	75,339.12	7.34	75,331.78
Miscellaneous	302,326.94	6,032.13	296,294.81
Miscellaneous:			
Casual	8,616.30	96.79	8,519.51
Services and supplies	3,850.21	.....	3,850.21
Reimbursement of salaries and expenses	1,323.15	.....	1,323.15
Tax recovery office fees	730.00	245.00	485.00
Total Carried to Statement A	$1,972,892.63	$ 28,793.81	$1,944,098.82
Special Districts (Carried to Statement G):			
1936 Seed Grain interest	126.13	.....	126.13
1939 Agricultural Advances interest	143.84	.....	143.84
1937-38 Feed and Fodder interest	160.44	.....	160.44
1938-39 Feed and Fodder interest	53.87	.....	53.87
TOTAL INCOME ACCOUNT	$1,973,376.91	$ 28,793.81	$1,944,583.10

STATEMENT C.

STATEMENT OF RECEIPTS CAPITAL ACCOUNT

From April 1, 1939 to March 31, 1940

	Gross Receipts	Refunds	Net Revenue
Land sales principal	$ 8,760.85	$ 58.31	$ 8,702.54

STATEMENT D.

STATEMENT OF RECEIPTS, REVENUE TRANSFERRED TO OTHER DEPARTMENTS

From April 1, 1939 to March 31, 1940

	Gross Receipts	Refunds	Net Revenue
Services and supplies (National Forestry Programme)	$ 1,638.79	$ 782.71	$ 856.08
Dominion of Canada Re-imbursement (National Forestry Programme)	17,723.65	.....	17,723.65
Previous year refunds	929.40	.....	929.40
Previous year collections	22.50	.....	22.50
Services and supplies (Youth Forestry Training Programme)	25.67	.....	25.67
Angling Permits	330.75	.....	330.75
Total carried to Statement A	$ 20,670.76	$ 782.71	$ 19,888.05
Special Districts (carried to Statement J):			
Social Service Tax	44,783.65	1.21	44,782.44
Wild Lands Tax	307.28	3.19	304.09
Educational Tax	3,155.30	.....	3,155.30
	$ 68,916.99	$ 787.11	$ 68,129.88

STATEMENT E.

STATEMENT OF RECEIPTS AND DISPOSITION OF LEVIED SCHOOL TAXES

From April 1, 1939 to March 31, 1940

Receipts:	
Gross receipts	$123,373.29
Refunds	22.71
Net to Statement J	$123,350.58
Disposition:	
Repaid to Department of Municipal Affairs Trust Fund	$ 24,485.54
Repaid to Department of Municipal Affairs to apply on Implemented Loans	91,258.72
Total repaid to Department of Municipal Affairs	$115,744.26
To Provincial Treasurer	7,606.32
	$123,350.58

STATEMENT F.

STATEMENT OF RECEIPTS AND DISPOSITION OF HOSPITAL TAXES

From April 1, 1939 to March 31, 1940

Receipts:	
Gross receipts	$ 20,611.84
Refunds	.....
Net to Statement J	$ 20,611.84
Disposition:	
To Provincial Treasurer repayment on 1939 Loan for Requisitions	$ 2,078.20
Suspense—unapplied receipts carried forward	18,533.64
	$ 20,611.84

STATEMENT G.

STATEMENT OF RECEIPTS AND DISPOSITION OF COLLECTIONS ON AGRICULTURAL ADVANCES

From April 1, 1939 to March 31, 1940

Receipts:				
Gross receipts			$ 46,380.68	
Refunds			.....	
Net to Statement J			$ 46,380.68	
Disposition:		Principal	Interest	
1937 Seed Grain		$11,388.15	$ 1,246.53	Repaid to banks
1938 Agricultural Advances		24,338.89	1,707.74	Repaid to banks
Total repaid to banks		$35,727.04	$ 2,954.27	
1936 Seed Grain		629.70	126.13	To Provincial Treasurer
1939 Agricultural Advances		3,775.98	143.84	To Provincial Treasurer
Audit Folio 1133	$9,345.78			
Unexpended balance of $25.000 loan	5,569.80			
Total Collections	$3,775.98			
1937-38 Feed and Fodder		1,597.28	160.44	To Provincial Treasurer
1938-39 Feed and Fodder		1,212.13	53.87	To Provincial Treasurer
		$42,942.13	$ 3,438.55	
			$ 42,942.13	
			3,438.55	
			$ 46,380.68	

STATEMENT H.

GOVERNMENT OF THE PROVINCE OF ALBERTA
DEPARTMENT OF LANDS AND MINES
SPECIAL AREAS TRUST ACCOUNT
STATEMENT OF RECEIPTS AND PAYMENTS

For the Year ended March 31, 1940

Cash in bank, March 31, 1939			$ 62,523.43
Receipts:			
Grazing rentals	$ 35,316.31		
Cultivation rentals	20,751.49		
Sale of buildings	7,831.00		
Reimbursement of dam construction costs	4,202.98		
Bank interest	1,049.83		
Equipment rentals	311.90		
Miscellaneous	865.72		
		70,329.23	
			$132,852.66
Payments:			
Construction of dams	$ 375.72		
Community pastures	5,394.37		
Road maintenance	3,121.86		
Purchase of equipment	9,057.08		
Fireguarding	296.01		
Equipment maintenance	1,022.83		
Miscellaneous	788.06		
		20,055.93	
Cash in bank March 31, 1940			$112,796.73

STATEMENT I.

GOVERNMENT OF THE PROVINCE OF ALBERTA
DEPARTMENT OF LANDS AND MINES
SPECIAL DISTRICTS TRUST ACCOUNT
STATEMENT OF RECEIPTS AND PAYMENTS
For the Year ended March 31, 1940

RECEIPTS

Funds transferred from Improvement Districts' Trust Account	$ 13,243.80	
Special Districts Tax	82,237.51	
Bank interest	21.63	
Miscellaneous	1,827.99	
		$ 97,330.93

PAYMENTS

Road maintenance	$ 17,967.29	
Direct relief	12,852.19	
Old age pensions	9,441.48	
Mothers' allowance	4,894.63	
Pests and weeds	2,373.49	
Buildings	1,283.40	
Repayment of bank loan	1,118.75	
Recoverable advances	877.02	
Land Titles Office fees	444.00	
Pensions for the Blind	82.08	
Miscellaneous	87.20	
		51,421.53
		$ 45,909.40

STATEMENT J.

STATEMENT OF RECEIPTS
SPECIAL AREAS AND SPECIAL DISTRICTS
April 1, 1939 to March 31, 1940

		Gross Receipts	Refunds	Net
TAXES:				
Special District Tax, Statement I		$ 82,362.72	$ 125.21	$ 82,237.51
Social Service Tax, Statement D		44,783.65	1.21	44,782.44
Wild Lands Tax, Statement D		307.28	3.19	304.09
Educational Tax, Statement D		3,155.30	.....	3,155.30
Levied School Tax, Statement E		123,373.29	22.71	123,350.58
Hospital Tax, Statement F		20,611.84	.....	20,611.84
Reporting School Tax		6,878.18	.....	6,878.18
Refunded to school districts	$6,532.23			
5% commission to Special Districts Trust Account	345.95			
Total Collections	$6,878.18			
Hail Tax		2,558.87	.....	2,558.87
Refunded to Hail Board	$2,430.92			
5% commission to Special Districts Trust Account	127.95			
Total Collections	$2,558.87			
TOTAL TAX COLLECTIONS		$284,031.13	$ 152.32	$283,878.81
Funds Transferred from Improvement Districts Trust Account, Statement I		13,243.80	.....	13,243.80
Special Districts Bank Interest, Statement I		21.63	.....	21.63
Special Districts Miscellaneous, Statement I		1,354.09	.....	1,354.09
Statement I	$1,827.99			
Less: Reporting schools commissions	$345.95			
Hail commissions	127.95			
	473.90			
	$1,354.09			
Special Areas Trust Receipts, Statement H		70,446.65	117.42	70,329.23
Agricultural Advances, Statement G		46,380.68	.....	46,380.68
Collections for Department of Agriculture:				
Horse vaccine		2,793.50	.....	2,793.50
Bran and sawdust		66.32	.....	66.32
		$418,337.80	$ 269.74	$418,068.06

STATEMENT K.

STATEMENT OF RECEIPTS BY BRANCHES

For Fiscal Years Ending March 31, 1939 and March 31, 1940

	Fiscal year ending March 31, 1939	Fiscal year ending March 31, 1940
INCOME ACCOUNT:		
Lands and Grazing Branch	$ 159,415.63	$ 148,286.74
Timber Branch	298,434.00	359,786.16
Mining Lands Branch	1,032,502.10	1,050,221.46
School Lands Branch	358,197.11	371,626.59
Miscellaneous	16,163.91	14,177.87
CAPITAL ACCOUNT:		
Land sales principal	8,593.93	8,702.54
TRANSFERRED TO OTHER DEPARTMENTS	4,766.75	19,888.05
SCHOOL LANDS TRUST FUND	86,322.26	83,664.73
SPECIAL AREAS AND SPECIAL DISTRICTS:		
Taxes	.....	283,878.81
Funds transferred from Improvement Districts Trust Account	.....	13,243.80
Special Districts Bank Interest	.....	21.63
Special Districts Miscellaneous	.....	1,354.09
Special Areas Trust Receipts	85,178.73	70,329.23
Agricultural Advances	.....	46,380.68
Horse vaccine	.....	2,793.50
Bran and sawdust	.....	66.32
UNAPPLIED RECEIPTS CARRIED FORWARD:		
Suspense	38,520.74	61,007.15
Improvements	7,162.42	4,308.07
Land patents cultivation crop share	20.06	404.16
School lands cultivation crop share	77.48	13,494.10
Grazing permits, fees, rentals, etc.	4,388.11	3,853.04
	$2,099,743.23	$2,557,488.72

STATEMENT L.

SCHOOL LANDS BRANCH
STATEMENT OF RECEIPTS

April 1, 1939 to March 31, 1940

	Receipts	Refunds	Net Revenue
INCOME ACCOUNT:			
Sales: interest	$ 75,339.12	$ 7.34	$ 75,331.78
Grazing fees, rentals, etc.	15,842.85	402.71	15,440.14
Hay fees, dues, etc.	945.64	25.85	919.79
Improvements	425.32	395.32	30.00
Cultivation fees, rentals, etc.	90,691.57	4,535.88	86,155.69
Miscellaneous leases	290.79	23.00	267.79
Timber permits, fees, dues, etc.	28,304.76	142.59	28,162.17
Coal fees, rentals, etc.	4,900.47	.....	4,900.47
Coal mining royalties	7,812.78	.....	7,812.78
Petroleum and natural gas: fees, rentals, etc.	37,617.12	499.50	37,117.62
Petroleum and natural gas royalties	115,002.11	.....	115,002.11
Miscellaneous	493.53	7.28	486.25
	$377,666.06	$ 6,039.47	$371,626.59
TRUST ACCOUNT:			
School lands sales principal	86,373.73	2,709.00	83,664.73
	$464,039.79	$ 8,748.47	$455,291.32

STATEMENT M.

ALBERTA SCHOOL LANDS TRUST FUND
BALANCE SHEET—March 31, 1940

ASSETS

Cash in bank and on hand	$ 6,180.76		
Less amount due Provincial Treasurer	1,100.00		
		$ 5,080.76	
Investments:			
Dominion of Canada debentures	$10,165,259.18		
Accrued interest	17.81		
		10,165,276.99	
Accounts Receivable:			
Undue principal	$ 1,080,654.66		
Arrears principal	733,127.21		
		1,813,781.87	
Due by Provincial Treasurer re adjustments		368.54	
			$11,984,508.16

LIABILITIES

Alberta School Lands Trust Fund	$11,984,508.16	$11,984,508.16

STATEMENT N.

ALBERTA SCHOOL LANDS SALES
REVENUE ACCOUNT
April 1, 1939 to March 31, 1940

Arrears interest as at March 31, 1939	$ 897,344.79	
Interest charges	195,534.28	
Interest on reinstated accounts	103,205.62	
Interest revenue		$ 75,331.78
Interest on cancelled sales written off		50,577.37
Amounts transferred from cultivation leases held on reinstated sales		17,091.38
Interest reductions granted by School Lands Board		490,320.57
Arrears interest as at March 31, 1940		562,763.59
	$1,196,084.69	$1,196,084.69

STATEMENT O.

STATEMENT OF COLLECTIONS ON TAX RECOVERY LANDS
April 1, 1939 to March 31, 1940

Grazing permits	$ 3,331.06
Grazing rentals	3,953.99
Improvements	20.00
Sales principal	1,269.64
Sales interest	17.90
Cultivation permits	8.30
Cultivation rentals	1,227.50
Cultivation crop shares	2,418.40
Mineral surface rentals	16.07
Miscellaneous leases	25.18
Miscellaneous use permits	3.50
Miscellaneous sale of improvements	110.00
Sundry revenue	9.75
	$ 12,411.29
Office fees	485.00
	$ 12,896.29

Special Areas Administration

REPORT OF THE SPECIAL AREAS BOARD, A. C. McCULLY, CHAIRMAN

The Special Areas Act of 1939 was assented to on March 31st, 1939, and provides for the constitution of each of the following Special Areas:

1. The Tilley East Special Area.
2. The Berry Creek-Sullivan Lake Special Area.
3. The Sounding Creek-Neutral Hills Special Area.
4. The Bow West Special Area.

The Act further provides that the Lieutenant-Governor in Council shall have power to appoint a Board of not more than three members who shall perform such duties and exercise such powers pertaining to a Special Area or Special Areas which are imposed or conferred upon the Minister by this Act, as may from time to time be assigned by the Minister to such Board.

From March 31st, 1939 to July 15th, 1939, administration was carried on by the former Special Areas Board under the Chairmanship of Mr. John Harvie, Deputy Minister of Lands and Mines.

Pursuant to the provisions of section 4, subsection B of the said Act, Order in Council No. 927-39 was signed under date of July 15, 1939, appointing a Board during pleasure.

The following is the personnel of said Board:—

A. C. McCully, Chairman,
G. R. Armstrong,
D. M. Graham, Secretary.

In addition to a Head Office in Edmonton a sub-office is maintained in each area constituted.

Previous to the passing of this Act, the responsibility of administration was divided between several departments. The 1939 Act places the entire administration under the jurisdiction of the Department of Lands and Mines.

This change necessitated a great deal of reorganization work, which, together with the formation of fundamental policies, occupied the Board's time for the greater part of this fiscal year.

Owing to extreme drought conditions for a number of years previous to 1938, a great many residents found themselves unable to keep taxes and seed grain advances paid up, and their outlook appeared rather hopeless. In order to relieve the situation and, as it were, give these people renewed interest and hope the Government decided to cancel a portion of their outstanding taxes and Agricultural Relief. As a result, Order in Council No. 727-39 was signed on June 10th, 1939, which was in effect:—

"That all arrears of taxes and agricultural relief advances up to and including the 31st day of December, 1935, owing by *bona fide* farmers residing in any Special District as at the 31st of March, 1939, are hereby cancelled."

This cancellation resulted in the writing off of a considerable amount of arrears of taxes, and Agricultural Relief Advances.

Regulations were set up with respect to the issuing of grazing and cultivation permits and leases. Amounts received from these are shown in the statement of receipts. No long term leases were issued as it was decided to withhold same

until title to all abandoned lands had been taken and present allotments readjusted.

A policy of exchange of private holdings for Crown lands was introduced and application forms were prepared and distributed to those wishing to make exchanges of this nature.

During the year a power grader was purchased for the sum of $7,350.00. This machine worked 930 hours and completed 45 miles of rebuilding, 160 miles of heavy maintaining, moved several buildings, dug ditches, excavated culverts, and made back fills.

A D4 Caterpillar, purchased in 1938, pulling a blade grader, worked 1,114 hours and completed 165 miles of maintaining and 32 miles of fire guarding.

In Special District No. 4, 12 miles of elevated grade, 7 miles blade grader reconstruction and 36 miles of heavy maintenance were completed by contract work.

Statements of receipts and payments are kept under two headings, namely Special Districts Trust Account and Special Areas Trust Account.

Special District Trust represents collections and disbursements of moneys collected from privately owned lands. The Special Areas Trust represents collections and payments with respect to Crown lands.

SPECIAL AREAS TRUST ACCOUNT
STATEMENT OF RECEIPTS AND PAYMENTS
For the Year ended March 31, 1940

Cash in bank, March 31, 1939		$ 62,523.43
Receipts:		
Grazing rentals	$ 35,316.31	
Cultivation rentals	20,751.49	
Sale of buildings	7,831.00	
Reimbursement of dam construction costs	4,202.98	
Bank interest	1,049.83	
Equipment rentals	311.90	
Miscellaneous	865.72	
		70,329.23
		$132,852.66
Payments:		
Construction of dams	$ 375.72	
Community pastures	5,394.37	
Road maintenance	3,121.86	
Purchase of equipment	9,057.08	
Fireguarding	296.01	
Equipment maintenance	1,002.83	
Miscellaneous	788.06	
		20,055.93
Cash in bank March 31, 1940		$112,796.73

SPECIAL DISTRICTS TRUST ACCOUNT
STATEMENT OF RECEIPTS AND PAYMENTS
For the year ended March 31, 1940

Receipts:		
Funds transferred from Improvement Districts' Trust Account	$ 13,243.80	
Special Districts Tax	82,237.51	
Bank interest	21.63	
Miscellaneous	1,827.99	
		$ 97,330.93
Payments:		
Road maintenance	$ 17,967.29	
Direct relief	12,852.19	
Old age pensions	9,441.48	
Mothers' allowance	4,894.63	
Pests and weeds	2,373.49	
Buildings	1,283.40	
Repayment of bank loan	1,118.75	
Recoverable advances	877.02	
Land Titles Office fees	444.00	
Pensions for the blind	82.08	
Miscellaneous	87.20	
		51,421.53
Cash in bank, March, 31. 1940		$ 45,909.40

The amounts of $17, 967.29 and $3,121.86 set out in the statements as road maintenance represent payments in cash. In addition to the above there was road work completed and applied on taxes in the amount of $33,783.32 and on relief $12,298.64. A total of $67,171.11 was spent on road work.

It is generally accepted that the rainfall during the growing season is seldom sufficient to produce a full crop and the productivity of the country is essentially dependent on water stored in the soil and sub-soil within the reach of draught by the growing plants. One of the best retarding agents to hold up the run-off and permit infiltration of water to the storage strata is a covering of grass. Having this in mind and coupled with the policy of encouraging more stock raising, the Board is endeavouring to have as much of the abandoned farm lands re-grassed as possible.

The P.F.R.A. supplied the Board with approximately 50,000 lbs. of crested wheat grass seed. In addition to this some 8,074 lbs. were harvested on the Department of Agriculture farms at Youngstown, Naco, and Cessford. This seed was all distributed among the farmers for seeding. About 75 per cent was seeded on Crown lands, the balance being supplied for seeding on privately owned lands to be repaid at the rate of 1½ lbs. for each lb. supplied.

The P.F.R.A. engineers were taken out of the Special Areas to work on the Ronalane Irrigation Scheme. As much water as possible for conservation development was not therefore secured, although even during their absence, construction was carried on and a fair season's work completed, consisting of the construction and repairing of six community stock-watering dams and one dugout. A number of private dams and dugouts was also constructed.

Ducks Unlimited constructed one dam south of Hanna, which provides badly needed stock watering within a community pasture and also a flood irrigation scheme for 1,200 acres of hay meadow. This organization is also interested in future development of four or five other projects within the Areas.

Work was begun on the development of six community pastures and head tax districts, projects which will make available to residents some 256,000 acres of pasture lands. A limited amount of use was made of these pastures, but same will not be completed until 1940.

A total of 7,200 acres were fenced and set aside as hay meadows.

DEPARTMENT OF LANDS AND MINES

FINANCIAL STATEMENTS OF SPECIAL DISTRICTS

For the information of the residents and taxpayers in the Special Districts, otherwise designated "Special Areas," the following financial statement is issued:—

STATEMENT FOR THE FISCAL YEAR 1939-1940
(Ending 31st March, 1940)

CHARGES:		
*Social Service Taxes	$ 44,782.44	
*Wild Land Taxes	304.09	
*Educational Taxes	3,155.30	
Schools	208,688.40	
Hospitals	23,397.97	
1939 Agricultural Advances	19,964.37	
Administration Costs	74,741.41	
Old Age Pensions	9,499.16	
Blind Pensions	82.08	
Mothers' Allowance	6,639.38	
Child Welfare	361.47	
Direct Relief	18,132.15	
Medical Relief	27,735.35	
Interest on Implemented Loans	8,523.60	
Interest on Direct Loans	3,817.60	
Medical and Hospital Bills	758.72	
Unpaid Hospital Requisitions, Interest	1,552.18	
Interest on Agricultural Advances	41,946.47	
Charitable and Hospital Bills	10,781.76	
Road Maintenance	21,089.15	
Pests and Weeds	2,373.49	
Buildings	1,283.40	
Land Titles Office Fees	444.00	
Miscellaneous Costs	875.26	
Construction of Dams	375.72	
Purchase of Equipment	9,057.08	
Maintenance of Equipment	1,022.83	
Total Charges		$541,384.83
COLLECTIONS:		
Special Districts Taxes	$ 82,237.51	
Social Service Taxes	44,782.44	
Wild Land Taxes	304.09	
Educational Taxes	3,155.30	
Levied School Taxes	123,350.58	
Hospital Taxes	20,611.84	
1939 Agricultural Advances	3,919.82	
Miscellaneous	1,375.72	
Total Collections		279,737.30
Deficit		$261,647.53

*NOTE.—These items represent the actual amounts collected and not the amount assessed. The department acts as the collection agency for these taxes and the district is in no way responsible for any uncollected arrears.

LIABILITIES

LIABILITIES OF THE SPECIAL DISTRICTS

As at the 31st March, 1940

Outstanding Cheques	$ 96.74
General	319.95
SOCIAL SERVICES:	
Provincial Mental Hospital	2,251.28
Provincial Training School	5,784.16
Central Alberta Sanatorium	4,519.00
*Old Age Pensions	38,203.30
*Blind Pensions	51.46
*Mothers' Allowance	40,359.15
Child Welfare	3,514.13
*Direct Relief	300,822.43
Implemented Loans by Provincial Treasurer	104,163.64
Direct Loans by Provincial Treasurer	79,662.24
Amounts Owing for Medical and Hospital Accounts	82,521.79
Medical Relief	75,000.12
Old Hospital Requisitions	38,731.01
Owing to Hail Board	17,735.47
Department of Agriculture	28.15
Department of Municipal Affairs	3.29
Department of Municipal Affairs Owing in former Municipal District No. 242	1,933.39

1937 Seed Grain Owing to Banks	243,846.57
1938 Agricultural Advances Owing to Banks	509,103.66
1936 Seed Grain Owing to Provincial Treasurer	89,259.40
1937-38 Feed and Fodder Owing to Provincial Treasurer	82,155.30
1938-39 Feed and Fodder Owing to Provincial Treasurer	44,130.49
1939 Agricultural Advances Owing to Provincial Treasurer	16,044.55
1939 School Requisitions Owing to Provincial Treasurer	94,582.08
1939 Hospital Requisitions Owing to Provincial Treasurer	19,767.59
School Debentures Outstanding	82,010.53
School Debts Outstanding	27,672.75
Medical Relief	27,735.35
Administration Costs	74,741.41
Charitable and Hospital Bills	10,781.76
	$2,117,532.14

*The amount shown as liabilities represents in the case of—

Old Age Pensions	Only 10% of the actual advance
Blind Pensions	Only 10% of the actual advance
Mothers' Allowance	Only 25% of the actual advance
Direct Relief	Only 20% of the actual advance

ASSETS

The following information is furnished to show the assets available to meet the current charges and arrears of liabilities.

ASSESSMENTS

Area (in acres)	3,107,034.5
Values:	
Land	$12,508,451.00
Minerals	69,500.00
Improvements	1,121,024.00
TOTAL	$13,698,975.00

MILL RATES FOR THE YEAR 1940

Special District	10
Levied School	12
Hospital	5
Education	3
Social Services	3

Social Services are charged only on land assessment

TAXES AND ADVANCES UNPAID AS AT MARCH 31st, 1940

General	$1,535,389.10
Agricultural Advances	984,539.97
Social Services	251,738.12
Reporting Schools	151,886.95
Hail	188,063.66

The Department acts as the collection agency of the taxes for Social Services, Reporting Schools and Hail.

A systematic check-up is being made by the Department of delinquent ratepayers and as permitted by law title to the lands where taxes are in default will be taken without delay.

Wherever title to land is taken under The Tax Recovery Act, the assets consisting of unpaid taxes will be correspondingly reduced. Collection of agricultural advances will not be possible in many cases because the person incurring the advance is no longer residing in the district.

J. HARVIE,
Deputy Minister.

ANNUAL REPORT

OF THE

Department of Lands and Mines

OF THE

PROVINCE OF ALBERTA

FOR THE

Fiscal Year Ended March 31st

1941

PUBLISHED BY ORDER OF THE LEGISLATIVE ASSEMBLY

EDMONTON:
PRINTED BY A. SHNITKA, KING'S PRINTER
1942

To the Honourable J. C. Bowen,
Lieutenant-Governor of the Province of Alberta.

SIR:

I have the honour to submit the report of the Department of Lands and Mines for the fiscal year ended March 31st, 1941.

I have the honour to be, Sir,

Your obedient servant,

N. E. TANNER,
Minister of Lands and Mines.

Edmonton, February 24th, 1942.

TABLE OF CONTENTS

PAGE

REPORT OF THE DEPUTY MINISTER 9

I.—PROVINCIAL AND SCHOOL LANDS ADMINISTRATION

Report of the Provincial Lands Division 24

Report of the School Lands Division 25

II.—FORESTRY ADMINISTRATION

Report of the Forestry Division 27

III.—MINING LANDS ADMINISTRATION

Report of the Mining Lands Division 48

IV.—TECHNICAL DIVISION

Report of the Technical Division 67

V.—ACCOUNTS ADMINISTRATION

Report of the Accounting Division 79

VI.—SPECIAL AREAS ADMINISTRATION

Report of the Special Areas Board 85

GOVERNMENT OF ALBERTA

DEPARTMENT OF LANDS AND MINES

Resulting from the transfer on October 1st, 1930, of Alberta's natural resources from federal to provincial control, the Department of Lands and Mines was on this date brought into being by the Alberta Government. The general purpose of the new Department was to be one of supervision and management of the resources in question.

Ministers of the Department, responsible at different periods for this administration, appear as follows:

Hon. R. G. Reid, appointed October 2nd, 1930,
Hon. Hugh W. Allen, appointed July 10th, 1934,
Hon. Charles C. Ross, appointed September 3rd, 1935,
Hon. N. E. Tanner, appointed January 5th, 1937.

CHIEF OFFICERS
DEPARTMENT OF LANDS AND MINES
March 31st, 1941

Honourable N. E. Tanner	*Minister of Lands and Mines*
John Harvie	*Deputy Minister of Lands and Mines*
T. C. Rankine	*Departmental Solicitor*
V. A. Wood	*Director of Lands*
M. Gossip	*Agent, Calgary Land Agency*
J. J. E. Clarke	*Agent, Peace River Land Agency*
J. W. Hamilton	*Superintendent of Mining Lands*
H. Ingrey	*Inspector of Mining Rights*
T. F. Blefgen	*Director of Forestry*
E. S. Huestis	*Acting Assistant Director of Forestry*
F. W. Neilson	*Chief Timber Inspector*
A. Earnshaw	*Radio Superintendent*
E. S. Huestis	*Fish and Game Commissioner*
D. E. Forsland	*Acting Superintendent of Game*
H. B. Watkins	*Acting Superintendent of Fisheries*
T. W. Dalkin	*Superintendent of the Technical Division*
A. A. Millar	*Chief Inspector, The Coal-mines Regulation Act*
M. H. Pitcher	*Acting Inspector of Revenue, Calgary*
J. W. Patrick	*Acting Accountant*
J. L. Irwin	*Statistician*

Special Areas Board

Head Office: Hanna, Alberta

A. C. McCully	*Chairman*
D. M. Graham	*Secretary*
G. R. Armstrong	*Member*

Special District Agents

D. M. Graham	*Hanna*
R. B. Langley	*Oyen*
D. J. Wilson	*Consort*
S. Cherkas	*Lomond*
J. H. Todrick	*Supervisor, Edmonton*

The Petroleum and Natural Gas Conservation Board

Head Office: Calgary

Robt. E. Allen	*Chairman*
F. G. Cottle	*Member*
J. J. Frawley	*Member*

REPORT

OF THE

Department of Lands and Mines,

1940-41

Honourable N. E. Tanner,
Minister of Lands and Mines,
Edmonton.

SIR:

I have the honour to submit the eleventh Annual Report of the Department of Lands and Mines for the fiscal year ended March 31st, 1941.

During the year to be reviewed by this Report, the world in general has passed through a terrible and devastating period. War has spread to almost every corner of the earth. Chaos and sudden death have come to many lands and no respite for a war-torn, war-weary earth is yet in sight.

It is something of a paradox, therefore, to report that during such a period this Department is able to present evidence of progress and advancement.

Such a situation, however, requires little explanation. Canada, so far, has been fortunate enough to escape the actual experience of war upon her soil. Alberta, an inland province, and one possessing great natural wealth, has been able to offer many of those products for which there is now so desperate a need. Products of her farms, and forests; fuel, oil and coal, for railway transport of materials to points of embarkation, aviation gasoline for wartime training planes, coal in ever-increasing quantities for shipment to far distant points in the Dominion requiring fuel, and other commodities which Alberta can supply and for which demands are now so urgent.

As stated in last year's Report, enlistments for active service have, of course, been taking place since the war began in the departmental staff. Civil servants are given indefinite leave until the end of the war or until they are discharged from whatever branch of the service with which they have been engaged, their respective positions in the Department becoming available to them on their return. As also previously stated, arrangements for the continuance of superannuation during their absence may be made so that the benefits of pensions on retirement would not become impaired.

The drain on experienced personnel is of course one of the many handicaps which governments and commercial institutions must anticipate under such terrible conditions as experienced by the world today.

By the close of 1941 enlistments for active service from the personnel of this Department totalled 39, 3 of whom were ladies who were taken on the strength of the Canadian Women's Army Corps.

The list at the close of 1941 was as follows:—

Name	*Date of Enlistment*	*Branch of Service*
Adin, R. G.	June 30, 1941	R.C.A.F.
Alexander, J. P.	July, 1, 1940	R.C.A.F.
Anderson, C. G.	June 30, 1941	R.C.A.F.
Arcand, Romeo	July 1, 1940	R.C.A.F.
Barnard, E. D.	September 20, 1939	Royal Canadian Signallers
Baxter, R. D.	November 13, 1939	8th Field Ambulance, R.C.A.M.C.
Bowen, R. L.	June 25, 1940	Calgary Highlanders
Brennan, W. R.	August 30, 1941	R.C.A.F.
Brent, Pearl M.	October 28, 1941	C.W.A.C.
Brick, H. A.	May 31, 1941	R.C.A.F.
Browne, O.	October 25, 1939	Edmonton Regiment
Bryant, H. J. P.	February 1, 1941	Canadian Provost Corps
Craig, Ace	May 6, 1940	Royal Canadian Navy
Dalphond, M. H.	June 22, 1940	R.C.A.F.
Fraser, C. M.	September 22, 1941	R.C.A.F.
Gauthier, L. P.	February 15, 1941	R.C.A.F.
Hutchison, J. A.	October 27, 1939	R.C.A.F.
Keats, F. V.	April 22, 1940	R.C.A.F.
Krause, R. F.	September 18, 1939	61st Battery R.C.A.
Lavoie, A. J.	June 1, 1940	South Alberta Regiment
Longson, Burgess	July 29, 1940	4th Petrol, R.C.A.S.C.
Magneison, J. A.	May 28, 1941	R.C.A.F.
Marr, F. B.	August 30, 1940	Royal Canadian Navy
McKee, R. M.	January 3rd, 1942	R.C.A.F.
Miller, E. Maureen	September 27, 1941	C.W.A.C.
McCardell, W. H.	March 13, 1940	R.C.A.F.
McKinnon, I. N.	May 2, 1940	R.C.A.F.
Newsome, R. T.	September 21, 1940	Royal Canadian Navy
Peart, Alfred	September 2, 1939	Edmonton Regiment
Pinkerton, H.	December 10, 1941	R.C.A.F.
Rees, D. B.	November 23, 1940	R.C.A.F.
Robertson, E. R.	May 7, 1941	Anti-Tank Battery
Russell, Isobel A.	September 16, 1941	C.W.A.C.
Shaver, E. P.	January 31, 1940	Royal Canadian Navy
Shillabeer, W. E.	October 31, 1939	Royal Canadian Navy
Strate, L. D.	May 20, 1941	R.C.A.S.C.
Sturrock, E. N.	January 15, 1942	R.C.A.S.C.
Walker, D. R.	August 15, 1940	R.C.A.F.
Young, D. J.	September 7, 1940	R.C.A.F.

In reviewing this list it should be pointed out that two names are deserving of special mention, Mr. J. A. Hutchison and Mr. E. P. Shaver, for the reason that both have risen to senior and influential rank in their respective services.

Mr. Hutchison, since rejoining the Air Service, has had more than one promotion and he is now Commanding Officer, with rank of Wing Commander, of No. 4 Initial Training School, R.C.A.F., in Edmonton. There are only some half dozen of these schools in the Dominion. The Edmonton school is one of the biggest and possesses a large staff of officers and several hundred men in training.

With active service in the Air Force during the last war, coupled with the signal distinction of this latest appointment, Wing Commander Hutchison has proved the value of his services. In the summer of 1941 he had the additional honour of being host to His Royal Highness, the Duke of Kent, during an inspection of the school in Edmonton. It is known that his present appointment was an extremely popular one and that his popularity in his new command has been well sustained.

Mr. Shaver, who for years before the war was active in the R.C.N.V.R. both in theoretical work and practical, the former in naval schools and the latter in many Pacific cruises, now holds the rank of Lieutenant Commander, R.C.N.V.R., and has been appointed to Staff Officer to the Naval Officer-in-Charge at Quebec.

Amongst the names in the preceding list it is learned with the deepest regret that Sergt. D. J. Young of the R.C.A.F. was killed in an aeroplane crash near Mountain View, Ontario, on July 22nd, 1941. Also, that Sergt. M. H. Dalphond, R.C.A.F., was officially reported missing on July 24th, 1941 after air operations over enemy territory. At a later date he was officially reported interned in Vichy, France, and is known to be safe and well.

Another report has been received covering Sergt. J. G. Rogers, R.C.A.F., who resigned from the Department in February, 1940 and enlisted in the Air Force on July 19th of the same year. He, also, it is our deep regret to state, is officially reported missing on August 20th, 1941 after air operations over enemy territory.

A name to be brought forward for special mention is that of Pilot Officer D. S. Florence, D.F.C., R.C.A.F. Mr. Florence for many years was a member of the Forestry Division of this Department. He resigned from the Department some time before the war to take up work with a large Alberta lumber company. With the declaration of war he entered the Canadian Air Force. Since then he has seen considerable service in many air raids over France and Germany.

On September 20th, 1941 the report was received that he had been awarded the Distinguished Flying Cross for meritorious work in air-raids over enemy territory.

The official citation is quoted as follows:—"This officer has proved himself as an enthusiast for night photography and had obtained photographs containing valuable information. Despite weather conditions and enemy opposition, the courses he had given his captain invariably were accurate. A very thorough and persevering navigator, he has done much to raise the standard of photography and navigation throughout the unit. As a bomb aimer he has been equally successful."

Recognition and honour of this nature are of a very high calibre. That they should have been bestowed on someone who for so long was associated with this Department is an incident of which the Department is justifiably proud. An expression of this pride has been sent to Pilot Officer Florence by his old comrades in the government service.

Before dismissing this subject I would like to say that those, whose names are now shown on the active service list—former civil servants of this Department now serving their country on land, sea or in the air—carry with them the sincerest wishes of every member of the Department for their preservation and for their safe return.

It is a list which has grown, is growing and undoubtedly will continue to grow.

The future is most definitely an unknown quantity. Additional demands of every nature will undoubtedly be made upon this Department. They must be met. Obstacles of many kinds will arise and they must be overcome. There is only one common objective to be reached—victory. To reach it, as quickly and as decisively as may be possible, every man and every woman must play his or her own particular part.

In my report last year I gave a brief picture surrounding the discontinuance of the granting of first and second homesteads and soldier grants in Alberta, which became effective on March 24th, 1939.

A short history of Alberta's homesteads, covering a period of 60 years, was presented. In it I stated the reasons for which these grants of land, particularly in the early days, were made. The virtues and the disadvantages which attended this form of sttlement were shown, and finally the reasons given for the issue of new regulations whereby such rights would cease.

A table followed which divided the 60 year period into 3 sections of time—(1) from Confederation to 1905, when Alberta became a province; (2) from that date to 1930, when the natural resources came under provincial control; (3) from then to 1939 when the issue of these land grants ceased.

At the close of this statement it was revealed that during this period of over half a century a total of 120,302 homesteads had been granted in Alberta, covering an area of 19,284,438 acres or 30,132 square miles, equivalent to 11.80 per cent of the province's total area.

The place of homesteads and soldier grants has been taken by the issuance of agricultural leases on provincial lands which became effective on July 25th, 1939. The leases are for 20 year periods with the option of purchase after 10 years at a price based on the land valuation when first taken over before any improvements were effected.

Cultivation leases were also discussed in last year's report, which are issued on a 10 year basis, subject to renewal for a similar period, but, unlike agricultural leases, without the option of purchase.

Details surrounding these different subjects, together with those dealing with grazing permits and leases, were given so that the present day picture of land administration within the province might be presented.

During the year under review, as reported in the Lands Division section of this report, 281 applications for agricultural leases were received and 224 issued. This total is approximately only a quarter of that representing annual homestead totals in the last years of homestead distribution.

The reason for this should be obvious. Immigration has ceased with the war, man power is on active service and aliens are ineligible at present for land settlement.

The introduction of agricultural leases in the place of homesteads is unquestionably a sound step in the right direction and has opened a sane and orderly programme in the all-important question of land development.

The precautionary measure, whereby 50 per cent of the area applied for by the settler must be declared by the Department's soil survey engineers as being suitable for agriculture, is definitely beneficial.

It should be stated that at present the agricultural areas selected for development are restricted to the Calgary, Edmonton and Peace River districts. It is expected that these may be enlarged from time to time following examination by the soil surveyors.

In the pioneer days there was no government paternalism. Many an adventurous spirit tackled, without experience, the development of a quarter section too poor in quality and too remote from civilization to offer any hope of return or permanent tenure. Taxes mounted, remained unpaid, and abandonment invariably followed.

With the settler of today proceeding under the guidance of expert advice, prohibited by legislation from the errors of a past age and freed in the early years from mounting costs of taxation, the future opens more happily for a steady, prosperous and permanent development of Alberta's potential agricultural lands.

I referred at the beginning of this Report to the Department's progress and advancement during the year under review. This is evidenced in the Revenue and Production statement which follows later.

It will be noticed that in addition to the highest revenue ever secured in the history of the Department there appears a list of commodities all showing increased production.

Oil presents another increase of over a million barrels and natural gas consumption of over 2½ million Mcf. Coal reached a record figure with an increase of 686,983 tons. Lumber manufactured increased by 51,285,184 F.B.M. Many other increases are shown.

Evidence of the wartime demands for building commodities are demonstrated in the increases for stone, bricks, tiles, sand and gravel, cement and lime. Salt, with the completion of reconstruction of the plant at Waterways, increased by over 5,000 tons.

Department's Revenue and Production, 1940-41

The highest revenue in the history of this Department, excluding the Special Areas, was recorded this year. The total from the various branches reached $2,031,494.38, an increase of $87,395.56 over last year's figure.

Expenditures totalled $670,278.85, a decrease of $38,326.49 from last year's total. A surplus for the year of $1,361,215.53 on income account is therefore reported. Details of these accounts, showing increases and decreases, are given in the Accounting Division's section of this Report.

Petroleum production once again showed an increase, which this year is recorded at 1,131,652 barrels. Natural gas consumption was increased by 2,603,782 Mcf.

Coal production, reaching the highest figure in the Department's history, showed an increase of 686,983 tons. Coke increased by 1,840 tons, briquettes by 19,617 tons and electrical power, used in the operation of Alberta coal-mines, by 4,084,193 k.w.hrs.

Shale mined during the year increased by 8,378 tons, bricks manufactured by 1,690,641 and tiles manufactured by 3,063 tons.

As a further indication of the wartime demands during the year for all materials, the following additional information is given:—Lumber, manufactured from timber cut on provincial lands increased by 51,285,184 F.B.M., production of stone by 17,842 tons, sand and gravel by 820,900 tons, cement by 36,337 barrels, hydrated lime by 15,050 tons and salt by 5,202 tons.

A total of 2,058 land patents, covering an area of 295,649.119 acres, is reported for the year. These totals are almost the same as those reported for last year. Details covering these notifications are given in the Technical Division's section of this Report.

As in previous years a chart accompanies same which shows the area of lands patented. The total area, from October 1st, 1930 to March 31st, 1941, is shown at 3,039,211.301 acres.

Lands Administration

Details relating to provincial and school lands administration are given in the Director of Lands section of this Report.

Forest Service

Fire Season.—In the accompanying statement dealing with summary of annual fire losses, it will be seen that the total loss for 1940 was over $300,000 of that shown for the preceding year—to be exact, an increase of $311,920.81.

General totals from 1930, year of the transfer of the resources, to 1940, inclusive, give a grand total for fire suppression costs of $805,434.03 and $7,716,754.86 for total loss of timber, young growth and of other property.

Radio.—One of the greatest achievements in the detection and suppression work of forest fires in Canada has been made by the Province of Alberta in the introduction of radio.

The use of radio in this respect has so speeded up the notification of fires to suppression crews that action can now be taken within a very short time of the starting of a fire, as opposed to unavoidable delays in the past during which a fire might reach disastrous proportions.

The completion of the radio set-up within the next two years will extend to all timber areas of the province those benefits which, during the past two years, have been derived in those areas already supplied with this equipment, which already has resulted in the loss of timber being so materially reduced.

Timber Industry.—Lumber manufactured from timber cut on provincial lands increased from 120,251,376 F.B.M. to 171,536,560 F.B.M. as shown in the following statement.

LUMBER MANUFACTURED FROM TIMBER CUT ON PROVINCIAL LANDS

Fiscal Year	F.B.M.
1935-36	84,555,400
1936-37	99,153,002
1937-38	139,508,403
1938-39	115,467,580
1939-40	120,251,376
1940-41	171,536,560
Total	730,472,321
Increase this year in comparison with last	51,285,184

The quite substantial increase shown for this year was due to wartime requirements calling for large quantities of lumber and also to additional quantities of mine props particularly in demand by steam coal mines. Operations of this classification of coal were very much greater during the year due to coal demands by the railways for moving the bumper crop and for the transporting of great quantities of war material and provisions to the Atlantic seaboard.

Further details surrounding these subjects, and others coming under the general heading of Forestry, are given in the Forestry section of this Report.

SUMMARY OF FIRE LOSSES WITHIN ALBERTA FOREST RESERVES

Period	Number of Fires	Area (Acres)	Salvable Timber M.f.b.m.	Salvable Timber (Cords)	Unsalvable Timber M.f.b.m.	Unsalvable Timber (Cords)	Cost of Suppression	Total Loss
October 1, 1930 to March 31, 1931	9	41.925	.....	.....	2.00	129.00	$ 551.67	$ 71.69
April 1, 1931 to December 31, 1931	31	52,218.05	2,370.50	3,086.00	6,295.73	111,599.00	17,624.12	154,651.47
Calendar Year 1932	32	2,555.75	8.00	15,863.00	3,845.00	1,005.60	3,491.04	8,790.73
Calendar Year 1933	39	29,275.88	26.75	1,201.00	19,188.25	108,414.00	18,409.92	95,796.93
Calendar Year 1934	47	21,963.00	1,510.00	9,200.00	2,661.00	209,550.00	31,118.51	96,195.87
Calendar Year 1935	12	6.50	.....	.....	.....	60.00	94.56	45.50
Calendar Year 1936	52	165,465.00	7,573.00	25.00	885,192.00	764,594.00	108,894.48	1,504,273.45
Calendar Year 1937	17	90.00	.....	.....	37,500.00	8.50	387.38	292.05
Calendar Year 1938	18	13,111.50	13,740.00	5.00	518.50	1.50	9,422.79	36,556.45
Calendar Year 1939	46	38,213.75	292.00	1,982.00	4,229.00	54,721.00	49,056.68	101,455.13
Calendar Year 1940	30	2,929.50	1,000.00	730.00	3.00	3,429.00	6,999.81	14,164.25
TOTALS	333	325,870.855	26,520.25	32,092.00	959,434.48	1,253,511.60	$ 246,050.96	$2,012,293.52

SUMMARY OF FIRE LOSSES OUTSIDE ALBERTA FOREST RESERVES

October 1, 1930 to March 31, 1931	47	11,145.19	155.00	.....	3.75	.....	$ 686.64	$ 79,950.85
April 1, 1931 to December 31, 1931	591	552,658.07	134,536.00	104,199.00	122,690.50	684,625.50	82,088.89	712,835.79
Calendar Year 1932	347	133,562.14	274.75	12,215.00	40,627.15	132,743.00	15,320.51	152,085.58
Calendar Year 1933	249	64,489.12	4,383.50	13,953.50	41,694.50	59,545.00	16,971.75	100,008.43
Calendar Year 1934	193	36,907.00	3,404.50	3,159.00	547.50	14,464.00	7,050.51	29,825.77
Calendar Year 1935	85	6,313.25	160.00	1,195.00	1,513.00	5,371.00	1,558.90	5,722.50
Calendar Year 1936	196	38,989.00	2,374.00	23,116.00	659.00	6,017.00	13,647.81	45,656.85
Calendar Year 1937	358	835,169.00	14,702.00	33,113.00	251,544.00	609,837.00	54,952.28	1,088,173.90
Calendar Year 1938	503	1,745,234.00	35,382.50	23,054.00	650,844.50	1,974,651.50	207,632.70	2,009,679.82
Calendar Year 1939	453	390,925.50	1,305.00	19,336.00	128,129.00	537,186.00	99,241.41	540,655.08
Calendar Year 1940	283	471,314.75	200.00	150.00	141,861.00	775,736.00	60,231.67	939,866.77
TOTALS	3,305	4,286,707.02	196,877.25	233,490.50	1,380,113.90	4,800,176.00	$ 559,383.07	$5,704,461.34

SUMMARY OF FIRE LOSSES WITHIN AND OUTSIDE ALBERTA FOREST RESERVES

October 1, 1930 to March 31, 1931	56	11,187.115	155.00	.....	5.75	129.00	$ 1,238.31	$ 80,022.54
April 1, 1931 to December 31, 1931	622	604,876.12	136,906.50	107,285.00	128,986.23	796,224.50	99,713.01	867,487.26
Calendar Year 1932	379	136,117.89	282.75	28,078.00	44,472.15	133,748.60	18,811.55	160,876.31
Calendar Year 1933	288	93,765.00	4,410.25	15,154.50	60,882.75	167,959.00	35,381.67	195,805.36
Calendar Year 1934	240	58,870.00	4,914.50	12,359.00	3,208.50	224,014.00	38,169.02	126,021.64
Calendar Year 1935	97	6,319.75	160.00	1,195.00	1,513.00	5,431.00	1,653.46	5,768.00
Calendar Year 1936	248	204,454.00	9,947.00	23,141.00	885,851.00	770,611.00	122,542.29	1,549,930.30
Calendar Year 1937	375	835,259.00	14,702.00	33,113.00	289,044.00	609,845.50	55,339.66	1,088,465.95
Calendar Year 1938	521	1,758,345.50	49,122.50	23,059.00	651,363.00	1,974,653.00	217,055.49	2,046,236.27
Calendar Year 1939	499	429,139.25	1,597.00	21,318.00	132,358.00	591,907.00	148,298.09	642,110.21
Calendar Year 1940	313	474,244.25	1,200.00	880.00	141,864.00	779,165.00	67,231.48	954,031.02
TOTALS	3,638	4,612,577.875	223,397.50	265,582.50	2,339,548.38	6,053,687.60	$ 805,434.03	$7,716,754.86

Mining Lands Administration

Information dealing with quantities and valuations of Alberta's non-metallic minerals produced during the year are given in the Report of the Mining Lands Division. To this is added details covering mineral rights, solid, liquid and gaseous, revenue from fees, rentals, bonuses and royalties, reservations of areas for geological examination and acquisition of varying forms of mineral leases.

Leases dealt with.—Totals of leases issued from October 1st, 1930—date of natural resources transfer—to March 31st, 1941 are shown as follows:—Leases active at date of transfer, 19,635; issued, 9,469; reinstated, 61; divided, 350; cancelled, 24,824; renewed, 256; active as at March 31st, 1941, 4,435. Areas covered by same are given in a separate statement.

Coal.—The table dealing with royalties on coal, produced in former years, is shown from the fiscal years 1907-8 to 1940-41 inclusive.

Salt

Salt, production totals for which are given from 1938, showed an increase of 5,202 tons for the calendar year 1940.

Reconstruction of the plant at Waterways was completed by the close of 1939, which accounts for the noticeable increase. The new plant at Waterways has a productive capacity of approximately 1,000 tons a month.

The salt deposit of Waterways was discovered some years ago whilst test-drilling to determine depths of bituminous sands. The deposit, some 200 feet in depth, and about 700 feet below the surface of the ground, tests from 98.27 per cent to 99.57 per cent in purity. An estimate by Dr. J. A. Allan, Department of Geology, University of Alberta, places the value of this salt reserve at 500,000 tons to the acre with a total of 30 million tons in the deposit, sufficient, at present rate of consumption, to supply the demands of the entire Dominion for a period of 60 years.

Production for the last three years is as follows: 1938, 3,995 tons; 1939, 3,322 tons and 1940, 8,524 tons. A well-head valuation of $10.00 a ton is given.

Petroleum and Natural Gas

Number of Turner Valley Wells.—Following the discovery of crude oil in the limestone, made by the Turner Valley Royalties well on June 16th, 1936, the numbers of Turner Valley oil wells placed on production and shown by annual totals are as follows:—

Year	Number of Wells
1936	2
1937	22
1938	36
1939	34
1940	36
Total number of producing oil wells in Turner Valley by December 31st, 1940	130

Ten wells, in addition to this total number, were completed during this period, but developed either as gassers or were abandoned as unproductive.

Petroleum and Natural Gas Conservation Board.—With the resignation of Mr. C. W. Dingman, Deputy Chairman of the Alberta Petroleum and Natural Gas Conservation Board, the appointment of Mr. Robert E. Allen to the position of Chairman of the Board was approved by the Alberta Government in September, 1940.

Mr. Allen, coming from California, brought recommendations from the Petroleum Division of the United States Government as a petroleum engineer and oil conservation expert of outstanding ability.

Production of Turner Valley's oil and gas is regulated by the Board through the issuance, on the first of every month, of production quotas for individual wells for the month ahead, which are stated in published orders.

The underlying principle in the Board's general administration is that of securing a maximum recovery of oil from the Turner Valley field over an unknown period of time and at the least possible injury to the field.

Alberta Aviation Gasoline.—Equipment for the processing of Alberta oil for aviation gasoline was installed during the year in provincial refineries. Resulting from this the home product was used and will continue to be used by Royal Canadian Air Force units in Alberta and in other western provinces.

With the ever-increasing number of planes, demands for this fuel are naturally growing all the time. A new market has been established. It will quickly expand.

British Empire Production.—Of the 27 oil producing countries of the world in 1940, Canada took 13th place and second place once again amongst the 7 production areas of the Empire.

The estimated total figures for the Empire show little change. Increases of about one million barrels each appear for Trinidad and Canada. Burma shows a slight increase, India a slight decrease; Brunei and Sarawak in Borneo remain about the same. Bahrein Island in the Persian Gulf showed another decrease, of approximately 400,000 barrels this year, as compared with the decrease of about twice this figure shown for the previous year.

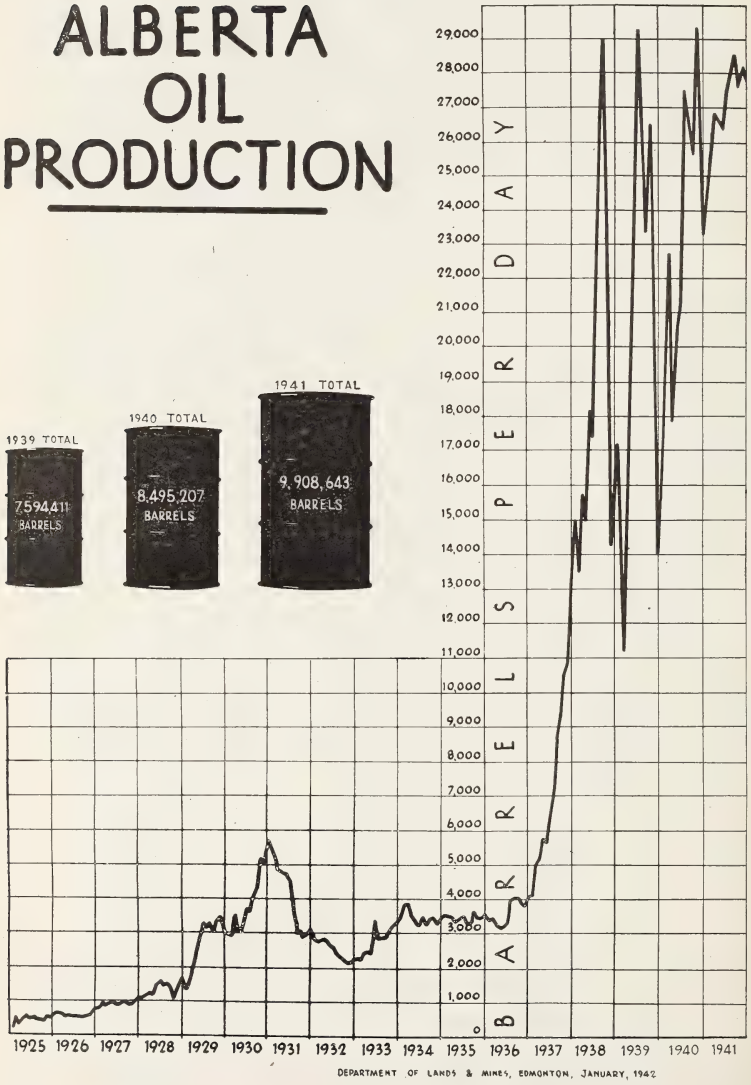
Canada, as in former years, secured her oil production in 1940 from the four sources of Alberta, Ontario, New Brunswick and the Northwest Territories. The 1940 production figures for Alberta, shown in the table given on the next page, are official and not estimated. Official figures for the rest of Canada for this period are not yet available.

In establishing Canada's present position as an oil producing country, the following information is perhaps of interest.

The British Empire in 1940 produced only 2.46 per cent of the world's oil supplies. Canada, 16.2 per cent of the Empire's supply, and Alberta, 99.33 per cent of Canada's. Almost the entire Alberta production—99½ per cent—came from Turner Valley, with the remaining one-half of one per cent coming from the other provincial fields. Of this insignificant fraction about one-third was secured from the international border area and the remaining two-thirds from the area of Vermilion-Wainwright-Lloydminster.

ALBERTA OIL PRODUCTION BY FISCAL YEARS

Period	Barrels
1914 to close of fiscal year, 1928-29	1,453,404
Fiscal year, 1929-30	1,135,014
1930-31	1,614,202
1931-32	1,246,328
1932-33	871,082
1933-34	1,141,473
1934-35	1,246,958
1935-36	1,249,596
1936-37	1,447,661
1937-38	3,680,099
1938-39	6,651,068
1939-40	8,039,279
1940-41	9,170,931
Total	38,947,095
Increase this year in comparison with last	1,131,652


ALBERTA
OIL
PRODUCTION
1939 TOTAL
7,594,411
BARRELS
1940 TOTAL
8,495,207
BARRELS
1941 TOTAL
9,908,643
BARRELS
BARRELS PER DAY
29,000
28,000
27,000
26,000
25,000
24,000
23,000
22,000
21,000
20,000
19,000
18,000
17,000
16,000
15,000
14,000
13,000
12,000
11,000
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
1925 1926 1927 1928 1929 1930 1931 1932 1933 1934 1935 1936 1937 1938 1939 1940 1941
DEPARTMENT OF LANDS & MINES, EDMONTON, JANUARY, 1942

PETROLEUM PRODUCTION IN THE BRITISH EMPIRE, 1932 TO 1941 INCLUSIVE

Country	1932 Barrels	1932 Per Cent	1933 Barrels	1933 Per Cent	1934 Barrels	1934 Per Cent	1935 Barrels	1935 Per Cent	1936 Barrels	1936 Per Cent
Trinidad	10,126,121	43.1	9,561,353	41.2	10,894,363	41.2	11,671,224	40.7	13,237,030	39.2
Canada	1,044,412	4.4	1,145,333	4.8	1,401,895	5.3	1,447,204	5.0	1,504,287	4.5
Bahrein Island	902	.....	31,377	0.1	185,072	1.1	1,264,807	4.4	4,644,735	13.7
Burma	7,073,437	30.1	7,114,311	30.0	7,278,859	27.5	7,181,113	25.1	7,587,718	22.5
Brunei	1,200,026	5.1	2,035,656	8.6	2,705,350	10.2	3,302,905	11.5	3,296,938	9.7
India	1,743,878	7.4	1,628,803	6.9	1,921,863	7.3	2,037,810	7.1	1,978,329	5.8
Sarawak	2,329,733	9.9	2,206,815	9.3	1,942,591	7.4	1,776,593	6.2	1,547,882	4.6
Total British Empire	23,518,509	100.0	23,723,648	100.0	26,429,993	100.0	28,681,656	100.0	33,796,819	100.0
World Total	1,306,714,101		1,438,767,449		1,517,121,671		1,651,993,118		1,797,993,578	
Per Cent, British Empire of World		1.80		1.65		1.74		1.74		1.88

Country	1937 Barrels	1937 Per Cent	1938 Barrels	1938 Per Cent	1939 Barrels	1939 Per Cent	1940 Barrels	1940 Per Cent	1941* Barrels	1941* Per Cent
Trinidad	15,502,989	36.8	17,737,060	35.5	19,270,000	37.7	20,300,000	38.2	21,100,000	38.5
Canada	2,943,750	7.1	6,956,811	14.0	7,843,780	15.2	8,723,982	16.5	10,101,643	18.3
Bahrein Island	7,762,264	18.4	8,298,000	16.7	7,588,560	14.8	7,200,000	13.5	7,070,000	12.9
Burma	7,847,553	18.5	7,499,500	15.0	7,396,000	14.4	7,750,000	14.6	7,900,000	14.3
Brunei	4,397,038	10.5	5,387,210	10.8	5,755,000	11.1	5,742,000	10.7	5,245,000	9.6
India	2,161,653	4.9	2,330,200	4.7	2,164,000	4.2	2,150,000	4.1	2,245,000	4.0
Sarawak	1,655,565	3.8	1,624,880	3.3	1,327,000	2.6	1,321,000	2.4	1,275,000	2.4
Total British Empire	42,270,812	100.0	49,833,661	100.0	51,344,340	100.0	53,186,982	100.0	54,936,643	100.0
World Total	2,046,650,389		1,979,268,510		2,068,667,520		2,158,123,000		2,222,535,000	
Per Cent, British Empire of World		2.06		2.51		2.48		2.46		2.47

*Preliminary figures

NOTE:—In the total of 10,101,643 barrels shown for Canada in 1941, 9,908,643 barrels or 98.08 per cent were produced in Alberta

ALBERTA OIL PRODUCTION BY CALENDAR YEARS

Calendar Year	Barrels	Calendar Year	Barrels
1914 to 1924	96,504	1934	1,265,940
1925	168,643	1935	1,263,750
1926	219,598	1936	1,320,442
1927	332,133	1937	2,796,908
1928	489,531	1938	6,742,039
1929	999,152	1939	7,594,411
1930	1,433,844	1940	8,495,207
1931	1,455,195		
1932	917,622	Total	36,603,959
1933	1,013,040		
Increase this year in comparison with last			900,796

NATURAL GAS CONSUMPTION

Fiscal Year	Mcf.
1939-40	24,140,489
1940-41	26,744,271

Coal

Coal production in Alberta during the year under review reached the highest total—6,205,088 tons with a valuation of $16,334,323.11—since the transfer of the natural resources to provincial control in 1930, showing an increase of 686,983 tons over the previous year. An additional 322 tons were produced by farmers under permit for their own use during the year. This figure is not included in the total output mentioned above.

The reasons for this increase, as already stated, are due to additional railway fuel requirements for moving the bumper crop and for transporting war materials to ocean ports, together with an increased domestic demand for Alberta coal from different points in the Dominion, especially from Ontario.

COAL PRODUCTION OF ALBERTA

(Under federal control)

Calendar Year	Tonnage	Valuation				
1886	43,220	$ 81,112	1909	1,994,741	4,838,109
1887	74,152	157,577	1911	1,511,036	3,979,264
1888	115,124	183,354	1912	3,240,577	8,113,525
1889	97,364	179,640	1913	4,014,755	10,418,941
1890	128,753	198,298	1914	3,683,015	9,350,392
1891	174,131	437,243	1915	3,360,818	8,283,079
1892	178,970	460,605	1916	4,559,054	11,386,577
1893	230,070	586,260	1917	4,736,368	14,153,685
1894	184,940	473,827	1918	5,972,816	20,537,287
1895	169,885	382,526	1919	4,933,660	18,205,205
1896	209,162	581,832	1920	6,907,765	30,186,933
1897	242,163	630,408	1921	5,909,217	27,246,514
1898	315,088	787,720	1922	5,990,911	24,351,913
1899	309,600	774,000	1923	6,854,397	28,018,303
1900	311,450	778,625	1924	5,189,729	18,884,318
1901	340,275	850,687	1925	5,869,031	20,021,484
1902	402,819	960,601	1926	6,503,705	20,886,103
1903	495,893	1,117,541	1927	6,934,162	21,982,058
1904	661,732	1,404,524	1928	7,336,330	23,532,414
1905	931,917	1,993,915	1929	7,150,693	22,928,182
1906	1,246,360	2,614,762	1930	5,755,911	19,379,000
1907	1,591,579	3,836,286			
1908	1,685,661	4,127,311	Sub-totals	121,443,468	$397,347,676

(Under provincial control)

1931	4,564,290	$ 13,415,745	1937	5,551,682	14,434,970
1932	4,870,030	13,441,193	1938	5,230,025	13,702,983
1933	4,714,784	12,197,339	1939	5,518,105	14,454,328
1934	4,748,848	12,440,617	1940	6,205,088	16,334,323
1935	5,462,973	13,946,338			
1936	5,696,375	14,720,004	Sub-totals	52,562,200	$139,087,840
TOTALS				174,005,668	$536,435,516
Increases this year in comparison with last				686,983	$ 1,879,995

NOTE:—Prior to 1919 production quantities and values shown in this statement refer to sales and colliery consumption. From 1919 onward the figures given represent total output of mines.

From 1886 to October 1st, 1930 Alberta's coal mines were operated under the supervision of the Dominion Government. On the latter date supervision was transferred to the Alberta Government. As only the last three months of 1930 were under provincial control, this calendar year is shown under the federal total.

Increases, as will be noted in the statements which follow, appear also in the production of coke, briquettes and electrical power purchased for operation of Alberta coal-mines.

Disposition of Alberta Coal in 1940.—Coal sold for consumption in Alberta totalled 1,311,644 tons; sold for consumption in other provinces of Canada, 1,745,135 tons; sold to the United States, 35,354 tons; sold to railway companies, 2,720,793 tons; used in making briquettes, 62,376 tons; used in making coke, 105,926 tons; used under colliery boilers, 132,285 tons; used by colliery railways, 7,489 tons; put to stock, 50,148 tons and put to waste, 89,638 tons. These tonnages include coal lifted from stock and waste heaps, a figure which is not included in the yearly production total already given.

PRODUCTION OF COKE AND BRIQUETTES

Calendar Year	Coke (Tons)	Briquettes (Tons)
1930	.....	24,111
1931	.....	15,102
1932	2,183	13,582
1933	49,279	16,104
1934	59,703	15,906
1935	63,428	18,812
1936	65,239	21,015
1937	65,967	27,044
1938	68,692	39,239
1939	68,913	46,510
1940	70,753	66,127
TOTALS	514,157	303,552
Increases this year in comparison with last	1,840	19,617

Disposition of Electrical Power for Alberta Coal-mines in 1940.—Purchased electrical power used by Alberta coal-mines during the calendar year 1939 totalled 31,660,119 k.w.hrs.

ELECTRICAL POWER USED FOR OPERATION OF ALBERTA COAL-MINES

Calendar Year	K.w.hrs.
1930	25,003,606
1931	16,918,625
1932	14,875,890
1933	17,611,959
1934	19,447,621
1935	23,111,373
1936	24,912,243
1937	25,483,749
1938	24,611,920
1939	27,575,926
1940	31,660,119
TOTAL	251,213,031
Increase this year in comparison with last	4,084,193

Shale and Clay Mined

During the calendar year 1940 five shale pits were in operation. Production from same totalled 35,614 tons of shale and clay from which 9,885,326 bricks and 5,712 tons of hollow tile were made.

Calendar Year	Shale Mined (Tons)	Bricks Manufactured (Number)	Tiles Manufactured (Tons)
1930	67,517	22,007,045	.....
1931	23,855	7,091,080	2,825
1932	8,446	3,444,010	182
1933	3,234	1,221,060	.....
1934	13,561	4,398,032	1,171
1935	20,258	7,349,300	.....
1936	24,588	8,963,384	.....
1937	27,144	9,946,794	252
1938	19,929	7,609,314	1,640
1939	27,236	8,194,685	2,649
1940	35,614	9,885,326	5,712
TOTALS	271,382	90,110,030	14,431
Increases this year in comparison with last	8,378	1,690,641	3,063

Mines Branch Annual Report.—Statistical information covering Alberta's coal-mining activities and production of shale and clay mined for the calendar year 1940 is given in complete detail in the published Annual Report of the Mines Branch, Department of Lands and Mines, for this period which appears as a separate publication to this Report.

Technical Division

Issue of Notifications (Land Patents).—The following comparative statement shows the number of notifications and acreage covered thereby for the fiscal years from 1930-31 to 1940-41, inclusive:—

NOTIFICATIONS ISSUED

Fiscal Year	Number of Notifications	Area, Acres
1930-31	23	3,019.710
1931-32	784	111,424.478
1932-33	1,260	178,887.233
1933-34	1,106	165,224.553
1934-35	2,006	324,611.398
1935-36	2,965	433,529.126
1936-37	2,231	325,615.379
1937-38	2,266	382,382.437
1938-39	2,874	517,435.896
1939-40	2,097	301,431.972
1940-41	2,058	295,649.119
TOTALS	19,670	3,039,211.301
Decreases this year in comparison with last	39	5,782.853

Special Areas Maps accompanying Technical Division's Report.—In addition to the usual chart showing area of lands patented from October 1st, 1930 to the close of the year under review, 4 maps appear in the Technical Division's section this year which deal with the Special Areas, and which show unpatented Crown lands and titles revested in the Crown in these districts.

Details surrounding the Special Areas, indicating problems as they exist and work done in connection with same, are given.

New Surveys.—The customary report dealing with new surveys is submitted in detail.

New Maps.—New maps published this year include one dealing with Alberta's coal areas. As a result of descriptions outlining geological formations, supplied by Dr. J. A. Allan, Department of Geology, University of Alberta, a new coal map was drafted by the Division. Three thousand copies of same, showing the different coal areas in colours, were printed, and a supply was forwarded to Mr. E. S. Clarry, Alberta Trade Commissioner at Toronto, by the Department of Trade and Industry. Scale of the map was twenty miles to the inch.

Another new map, in connection with which satisfactory progress was made, dealt with an up-to-date map of the province. The scale is sixteen miles to the inch. The new map shows railways, highways, national parks, forest and Indian reserves and many other features.

Soil.—Details covering a soil survey conducted in the province are given at some length. Classes and types of land areas are given, together with a table specifying arable, non-arable and potentially arable lands.

Preservation of records on films.—The problem of storing the large volume of closed files has been largely solved by an amendment to Chapter 75 of the Department of Lands and Mines Act, which was assented to on March 14th, 1941.

By this amendment it is now possible to take photographs of documents of every variety which may relate to transactions concluded for a period of over one year. Points of information relative to this innovation are discussed.

Maps and Plans.—Demands for maps and plans, due largely to Army and Air Force requirements, were greatly increased during the year.

Staff

To the staff of this Department, during the year now reviewed, I can only repeat my remarks and my appreciation as stated at the close of my Report last year.

With the growing seriousness of the world situation today, I would like to emphasize them once again. The privilege of wearing His Majesty's uniform at this time is denied to many of us. Considerations of stringent requirements of active service medical boards, physical disabilities or age frequently bar the way.

For all of us, however, of either sex and of any age, there is a definite war job to be done. Out of uniform the service given is less glamorous and will probably pass unheralded. It will play, however, an important and vital part in reaching victory, the present sole objective of the world's free peoples. It is a part that must now be played, that is being played, by the opposers of tyranny in every country on earth.

The nature of such service is of necessity varied. So many jobs may appear to be inconsequential, but which are, nevertheless, important and essential cogs in the wheel of that great machine which now so grimly and so ceaselessly is moving towards its goal.

Here in this Department, if we cannot serve elsewhere, is a definite war job to be done. The tools of war go in vast quantities from this province. They must be efficiently turned out, despite the difficulties presented by experienced personnel leaving continually to engage in work closer to the scene of action.

There is also the great question of rehabilitation. The question of the coming peace—and winning that peace. The question of preparing here in Alberta a new prosperity for the returning thousands, and for that great unseen army in ravaged war lands who will look to us for refuge.

These are great and grave questions which must now be seriously considered by the favoured lands untouched by war.

The staff of this Department by its loyalty and endeavour can enter this picture, can carry a great responsibility and can do invaluable work. Once again I would like to express to them my very real appreciation for the way in which they have met and overcome the many departmental problems which the present period of world crisis has presented.

Individual detailed reports from the various Divisions of the Department follow.

Your obedient servant,

J. Harvie,
Deputy Minister.

Edmonton, January 16th, 1942.

Provincial and School Lands Administration

REPORT OF THE DIRECTOR OF LANDS, V. A. WOOD

PROVINCIAL LANDS

During the fiscal year to which this report appertains, the Federal Government's crop curtailment arrangement and quota system affected materially the transactions of this Department. Many settlers took advantage of the arrangement and summer-fallowed their land. The Department also co-operated by discontinuing to accept applications for cultivation leases except in cases where at least one-third of the total area applied for had already been cultivated.

Due to the quota system, collections at the commencement of the season were slow, but improved as storage space became available and quotas were raised. This system, however, entailed a great deal more work collecting departmental crop shares.

New cultivation lease regulations were established fixing the area to be cultivated yearly as follows:

	Break (Acres)	Crop (Acres)
First year	5	....
Second year	10	5
Third year	10	15
Fourth year	15	25
Fifth year	15	40
Each succeeding year for the duration of the lease	....	55

Cultivation lessees who will benefit by the new regulations are being notified and given the privilege of having their leases amended.

Crop shares to be paid in accordance with the various cultivation leases issued have been permanently fixed as follows:

Where original crop share was 1/3, reduced crop share will be 1/4
Where original crop share was 1/4, reduced crop share will be 1/5
Where original crop share was 1/5, reduced crop share will be 1/6

Military protection is granted in cases where a lessee was the holder of a lease prior to his enrollment for active service in defence of the Empire against a foreign power.

Land agencies were maintained at Calgary, Lethbridge and Peace River, the Lethbridge Land Agency being closed on the 31st of March, 1941, and the records transferred to the Calgary Agency. A sub-agency has been maintained at Lethbridge, however, with the former agent appointed as sub-agent.

By Order in Council, No. 488/40, dated the 23rd of April, 1940, large areas of land north and east of Edmonton were added to the area already available under the agricultural lease regulations.

During the fiscal year under review 281 applications were received under the new agricultural lease regulations and 224 agricultural leases were issued. This is considered highly satisfactory owing to the fact that no lease can be issued unless the soil investigator's report shows 50 per cent of the area fit for agricultural purposes.

In connection with the field inspection staff, the following is a summary of the work performed:

Requests for inspections outstanding at 1st April, 1940	1,481
Reports called for from 1st April, 1940 to 31st March, 1941	3,243
Reports received from 1st April, 1940 to 31st March, 1941	3,920
Reports outstanding at 31st March, 1941	804

This work was carried on by six field inspectors.

The total revenue received for the fiscal year in connection with the administration of provincial lands amounted to $125,544.35, as compared with $148,286.74 during the previous year, showing a reduction of $22,742.39.

Details pertaining to this revenue will be found in the Accounting Division's section of this Report.

A complete filing system is maintained through which all letters directed to the Department were received and from which all outgoing letters were despatched. During this fiscal year 132,717 letters were received and 198,985 letters were despatched. There were 4,747 new files made, bringing the total number of files in use up to 114,887.

The number of stencils cut during the present year were 332 from which 141,297 pages were mimeographed.

Translations for this and other Departments numbered 287.

A total number of 996 hay permits was issued under authority of which 7,694 tons of hay were cut. A total of 10 hay seizures was made during the fiscal year under authority of which 96 tons of hay were cut.

The following statement shows additional transactions completed during the year:

Entries cancelled	1,119
Applications for patent received	1,686
Notifications for title issued	1,831
Cultivation permits issued	28
Grazing permits issued	1,094
Hay permits issued	996
Agricultural leases issued	224
Accrued area leases issued	51
Cultivation and grazing leases issued	116
Renewal cultivation and grazing leases issued	89
Cultivation and grazing leases cancelled	116
Townsite leases issued	1
Surface leases issued	1
Miscellaneous leases issued	29
Provincial land sales granted	85
Licences of occupation issued	10
Fur farming leases issued	5
Assignments registered	89

The following statement gives particulars concerning transactions in connection with long term grazing leases during the fiscal year:

	Number	Acreage
Leases in existence April 1st, 1940	1,415	1,856,216.94
Leases issued	111	299,179.21
Leases cancelled	82	159,360.18
Leases reinstated	7	9,895.00
Leases transferred to Special Areas	18	8,718.48
Area added to existing leases	....	4,408.85
Area withdrawn from existing leases	....	5,586.49

On the 31st of March, 1941, there were in existence 1,433 long term leases, comprising an area of 1,996,034.85 acres, summarized as follows:

	Number	Area
Dominion leases	579	829,524.19
Provincial leases	854	1,166,510.66

SCHOOL LANDS

The report for the fiscal year ending the 31st of March, 1941, in connection with the administration of school lands, is herewith submitted.

The Board appointed, pursuant to the provisions of Section 44 of The Provincial Lands Act to deal with the matter of compromises or adjustments in connection with outstanding school lands sales, continued to function throughout the year under review, and 106 cases were dealt with in connection with which reductions were made as follows:

Principal	$257,527.87
Interest	297,794.85
TOTAL	$555,322.72

This makes a grand total of 2,359 cases dealt with to the end of the fiscal year, resulting in total reductions being granted in the sum of $2,630,824.30 on account of principal and $2,150,507.55 on account of interest.

All of the Board's recommendations were accepted by the Government and the reductions recommended in each case were made effective by various orders in council passed during the year.

There were no public auction sales of school lands held during the fiscal year.

The total net revenue collected for the fiscal year amounted to $414,584.20 as compared with $455,291.32 for the previous year, being a decrease of $40,707.12.

The decrease in revenue is mainly accounted for by reason of heavy storms during the latter part of the season which resulted in a considerable amount of grain being threshed "tough." Some crops were not threshed until after the new year. The grain quota imposed by the Federal Government also accounted for the slow delivery of grain. Collections for the Department's share of the 1940 crop, however, were fairly good.

Of the total revenue collected, the sum of $76,806.39 was paid on account of principal moneys in connection with school lands sales and was transferred to the credit of the School Endowment Fund. The balance of the moneys, namely $337,777.81, comprises payments made on account of interest, rentals, royalties, etc., and other items of a more or less similar nature.

During the fiscal year 544 cultivation leases were issued comprising an area of 105,038.01 acres, an increase of 36 leases over the previous year.

A total of 296 permits were issued authorizing the cutting of 2,949 tons of hay under authority of which 2,589 tons were cut. A total of 6 hay seizures were made during the fiscal year under authority of which 94 tons of hay were cut.

In connection with timber operations, 13 timber berths were disposed of by sale and from these berths and other berths in operation the following material was manufactured:

12,269,585 F.B.M. of lumber
29,918 railway ties

In addition to the above, 343 timber permits were issued, authorizing the cutting of timber on school lands, and under authority of these permits the following material was cut:

	Authorized	Cut
Lineal feet	28,968	29,754
F.B.M. of lumber	3,258,098	1,946,359
Fence posts	6,824	3,334
Cordwood	1,500	1,259
Shingles	16,000	6,000
Railway ties	17,410	23,421

The total amount of lumber manufactured from school lands is as follows:

	F.B.M. of lumber
Under authority of timber berths	12,269,585
Under authority of permits	1,946,359
Registered under seizures	133,795
TOTAL	14,349,739

In addition to the usual routine business the following transactions were completed:

Assignments registered	80
Cultivation and grazing leases issued	544
Cultivation and grazing leases cancelled	441
Renewal cultivation and grazing leases issued	195
Grazing permits issued	1,821
Hay permits issued	296
Timber permits issued	343
Timber seizures	31
Hay seizures	6
Cultivation permits	25

Forestry

REPORT OF THE DIRECTOR OF FORESTRY, T. F. BLEFGEN

The fiscal year 1940-41 shows a very satisfactory state of affairs with respect to the extent of forestry departmental revenue.

The anticipated increased demand for forest products outlined in last year's Annual Report materialized even beyond expectations and the sale of forest products has been the largest since the transfer of the natural resources to the province in 1930. In fact, if records were available they would show the year under review to be an all-time high in lumber production.

The requirements for lumber for military camps, equipment crates and food and munition containers, as well as for increased housing facilities, necessitated by the larger number now employed, will perhaps be still greater during the next fiscal year than for 1940-41.

Although the demand for lumber has been brisk, and it is fully expected that a large volume will be required, at least during the coming year, it is not anticipated that the present high output will be continued after 1941.

This forecast decrease is based on the fact that Britain has been awarding very few orders during the past six months, and that a great deal of lumber purchased for overseas shipment remains on the eastern seaport, and has only recently started to move.

Furthermore, some stocks purchased during the past winter by eastern manufacturers still remain in this province, owing to the lack of storage space at manufacturing plants in the east.

The Timber Controller for the Dominion has prevented a repetition of conditions which prevailed during the war years of 1914-18 when lumber prices sky-rocketed. During the present war prices have been rigidly controlled.

In order to continue the production of lumber on anything like the present scale, more care must be exercised when logging merchantable stands and in preserving and protecting any stands that have not yet reached merchantable size.

From time to time, in previous annual reports and requests for appropriations, the necessity of purchasing new equipment to replace a great deal of that which has become worn out or obsolete has been pointed out. Very little money for such purchases, however, has been provided.

Purchases of equipment have failed, therefore, to replace what it has been found necessary to condemn as being worn out and of no further use. This is a serious condition and will, in the not distant future, require large expenditures for new purchases if firefighting equipment in the province is to come anywhere near standard requirements.

Direct benefits from the extension of the look-out system further north and the installation of two-way radio communication between the look-outs and the rangers has speeded up the transmission of information to the rangers of fires in their districts, and has assisted greatly in cutting suppression costs, as well as being the means of reducing losses of timber.

Detection of fires and the transmission of information with regard to locations, although very useful, do not complete the requirements as it is necessary to get men and equipment on most fires and do a great deal of work in order to prevent their spread in or to valuable timber.

The areas required to be supervised by rangers, especially in the Northern Alberta Forest District, are, in most cases, too large for efficient fire protection, and until such time as money is available for the hiring of a greater number of trained personnel, there is no hope of greatly reducing timber losses and suppression costs.

The forest nursery operations at the Oliver Mental Institute and at Fort Saskatchewan continue to be very satisfactory. The same degree of success has, however, not been attained at the Lethbridge Gaol where the soil is different and irrigation is required.

A number of exotic trees has been introduced by planting of seed brought into the province from different points in the Dominion and the United States, some of which have been found satisfactory and these are now being planted more extensively.

A small number of acorns from Bur oak (*quercus macrocarpa*) trees, growing at Oliver from seed obtained in Manitoba, was gathered last fall and as these showed good germination, they were planted in the fall of 1940, and it is hoped that it will be possible to report the reproduction of oak for the first time from acorns produced in this province.

Timber stands in Simonette River watershed

Forest Protection

Protection deficiencies, stressed in previous annual reports, particularly in the Northern Alberta Forest District, remain the same in spite of the mounting hazard from increased settlement. Until remedial measures are taken to decrease the size of the ranger districts and provide patrols along the arterial river routes of travel, no improvement should be looked for in protection accomplishment.

Fire Season.—In the winter of 1939-40 the snow-fall along the east slope of the Rocky Mountains was considerably lighter than average. Numerous falls of wet snow occurred, however, during March and early in April, as a result of which the forest reserves were not bare of snow until April was well advanced.

The month of May was quite dry, and June was unusual due to the fact that, instead of the customary heavy rains experienced at that season of the year, only scattered showers occurred. During July, however, a number of heavy rains and frequent scattered showers held the usual late July and early August fire hazard in the mountains slightly below normal.

From early in September until the middle of November, when the fire season ended, frequent light showers and snow flurries kept the ground cover moist, and fire danger at a minimum.

In the western part of the Northern Alberta Forest District a normal snow-fall was evidenced during the winter of 1939-40 with the heaviest falls occurring in February and March.

The spring break-up was later than usual and did not occur until the middle of April.

As is usually the case in the late spring break-ups, the winter accumulation of snow melts very quickly, causing rapid run-off and floods in some sections, the ground not having the same opportunity of absorbing the moisture as when earlier and more gradual break-ups occur.

New green growth came quickly, however, and assisted greatly in holding the spring hazard below normal.

General rains occurred during the last week in May in this section of the District and a normal fire season occurred.

The north-eastern part of the province was less fortunate, where a winter of light snow-fall was followed by a hot,dry weather with exceptionally high winds.

This weather continued practically all summer with no relief, resulting in a very severe fire hazard, which continued until late in the fall.

When winter set in about the middle of November, some of the creeks which usually flow all summer were entirely dry, and muskegs that are normally floating bogs dried to a depth of from three to four feet.

Unless exceptionally heavy snows are experienced during the coming winter, a continuation of the extreme fire hazard can be anticipated at least during the early spring of 1941.

Head of the Simonette River

Fire Prevention.—The prevention of fires is of primary importance in that the degree of its success determines more or less the requirements of fire suppression.

Prevention, actively, is necessarily a matter of administration, having to do with fires originating through human agencies in one form or another. Fires from natural causes are of a lesser frequency, and their start is not readily subject to preventive control. Some useful preventive measures are from time to time obtained through newspaper articles and radio broadcasts, warning of the

hazardous conditions of the forests and the proper precautions necessary to be taken while in forest areas. The most efficient form of publicity, however, is found to be by direct contact between the Forestry field staff and persons using the forest areas for recreation and commercial purposes.

This contact is brought about in the forest reserves by the requirements that all persons travelling in these areas must obtain a free travel permit. The issuance of these permits furnishes the ranger with excellent opportunities of emphasizing the needs and methods of fire prevention. In cases of the ranger's absence, provision is made for registration on blanks, reporting the visitor's proposed sojourn.

While personal contact is not made by the latter procedure, the visitor's approximate whereabouts is known to the ranger, and tends to produce greater care with fire than would otherwise be the case.

With a meagre staff and large districts, this contact is not available in the Northern Alberta Forest District, but the system having proven so successful in the forest reserves, some such form of contact in the north should be under consideration in the immediate future.

Numerous fires have been caused in the northern districts by trappers burning the grass around lakes and sloughs in order to more readily find the muskrat runs, and by their winter camp fires when not properly extinguished.

Both of these sources of fire can be greatly decreased by the institution of registered traplines. This has been proven by actual experience.

BURNING PERMITS ISSUED, PROVINCE OF ALBERTA, 1940

By the Forest Services			
Cypress Hills	.....		
Crowsnest-Bow River	29		
Clearwater	272		
Brazeau-Athabaska	23		
By the staff of the Forest Reserves		324	
Western	439		
McMurray	25		
Slave Lake	312		
Peace River	371		
By the staff of the Northern Alberta Forest District		1,147	
By Outside Agencies:			
Honorary Fire Guardians	2,079		
Fire Guardians in Municipal Districts	549		
Royal Canadian Mounted Police	744		
Sub-total		3,372	
TOTAL			4,843

PROSECUTIONS AND CONVICTIONS, PRAIRIE FIRES ACT, 1940

	Instituted by Forest Service	Instituted by other Agencies	Totals
Number of prosecutions	23	50	73
Number of convictions	22	46	68

Fire Detection.—Mention has been made in previous reports of the need for more adequate provision for fire detection throughout the Northern Alberta Forest District. In line with this policy the establishing of a system of look-outs will afford visual coverage of the more important timber areas and the addition of units is proceeding as fast as available funds will permit. The Adams Creek look-out, located on the east half of section 31, township 54, range 4, west of the 6th meridian, at an elevation of 7,200 feet was erected and radio was equipped to form another unit of the gradually extending system.

Fire Suppression.—In the north-eastern part of the province, the dry year, with light snow-fall during the three winters immediately preceding and hot dry winds in the early spring, the total absence of moisture in the form of rain brought

about a very hazardous fire condition in this portion of the Northern Alberta Forest District, and it was in this area that the largest and most destructive fires took place.

During the fire season of 1940, 313 fires were dealt with, 155 being in the large or C. and D. classes, the remainder being under ten acres in extent.

The total losses are estimated at $954,031.02 and suppression costs, including ranger's services actually expended on fires, is $67,231.48.

While the season in the north-eastern part of the province was very long and severe, extending from early spring until the middle of November, a normal season was experienced in other parts of the province.

It is again noteworthy that on the east slope of the Rocky Mountains, and especially in the forest reserves including the Cypress Hills, the fire occurrence and loss were held to a minimum, largely through the vigilance and energy of the staff concerned.

While commending the staff for their tireless efforts and good records, the large and increasing number of campers and tourists, who each year make greater use of the forest reserves for camping and recreational purposes, are due for a great deal of credit regarding their splendid co-operation and for their care with fire while in the forest areas.

COMPARISON OF FIRE LOSSES BY PERCENTAGE

Causes	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940
Campers	23.7	52.8	38.9	35.4	42.3	38.3	35.9	27.4	28.8	26.0
Smokers	3.2	5.3	13.5	11.7	9.3	9.7	4.5	3.6	5.0	4.8
Settlers	21.9	17.1	17.4	17.9	8.2	11.7	20.7	14.6	14.8	12.2
Railways	6.6	4.5	2.8	5.0	10.3	4.0	9.3	4.2	4.6	6.7
Lightning	.6	2.6	5.2	7.5	1.0	14.1	2.2	2.3	4.0	2.8
Industrial operations	1.9	1.1	1.7	4.2	1.0	3.2	.8	1.4	1.4	.6
Incendiary	15.1	8.2	11.8	11.2	22.7	10.1	13.5	14.6	9.8	8.9
Public works	1.4	.5	1.4	1.3	1.0	.4	.3	.8	.6	....
Unclassified	1.5	1.6	....	2.5	2.1	2.0	7.2	9.0	13.4	16.9
Unknown	24.1	6.3	7.3	3.3	2.1	6.5	5.6	22.1	17.6	21.1

RAILWAY FIRE LOSSES, CALENDAR YEAR 1940

This statement deals only with fires burning on forested territory under the supervision of the Alberta Forest Service, and which started within 300 feet of the centre line of the railway right of way.

Causes and number of fires:

Railway causes—Locomotives	16	
Employees	4	
Sub-total		20
Other causes—Campers and travellers	3	
Settlers	7	
Unknown	6	
Unclassified	1	
Sub-total		17
TOTAL		37

Number of acres burned:

Slashing or old burn	....
Timber land	44
Young growth	71,010
Non-forested	14,310
TOTAL	85,364

Loss:

Timber	$ 131,00
Young growth	14,445.50
Forest products	....
Other property	....
TOTAL	$14,576.50

ANNUAL STATEMENT OF FIRES BY CAUSES, MONTHLY DISTRIBUTION, ETC., WITHIN AND OUTSIDE FOREST RESERVES, ALBERTA—CALENDAR YEAR, 1940

Cause	Number					P.C.	Damage	Area, Acres	Monthly Distribution												Fires Inside Provincial Forests		Fires Outside Provincial Forests	
	A	B	C	D	Tot.				January	February	March	April	May	June	July	August	September	October	November	December	No.	Area, Acres	No.	Area, Acres
Camp-fires	23	25	20	14	82	26.0	$ 138,269.50	89,584	...	..	...	5	9	5	8	15	25	11	4	...	3	2	79	89,582
Smokers	5	6	2	2	15	4.8	27,013.27	12,905	...	1	...	....	1	3	1	3	6	...	....	...	3	2,029½	12	10,875½
Settlers	5	13	16	4	38	12.2	4,255.75	7,035¾	...	....	....	....	13	...	2	3	14	6	....	....	...	.....	38	7,035¾
Railways	6	10	3	2	21	6.7	177,616.25	85,185½	....	....	....	....	4	1	11	1	4	...	....	....	...	.....	21	85,185½
Lightning	2	1	5	1	9	2.8	8,708.75	3,426	....	....	....	....	....	3	....	5	1	....	....	....	5	476	4	2,950
Industrial Operations	1	1	....	....	2	.6	5.50	1	....	....	....	....	....	1	....	....	....	1	....	....	1	1	1	.....
Incendiary	8	4	10	6	28	8.9	37,379.25	23,915	....	....	....	....	8	....	....	4	13	3	....	....	10	401	18	23,514
Public Works	...	...	...	...	...	...	.....	.....	....	....	....	....	....	....	....	....	....	....	....	....	...	.....	...	.....
Unclassified	7	12	16	18	53	16.9	325,857.00	159,706½	2	1	....	3	15	2	3	11	14	2	....	....	1	.....	52	159,706½
Unknown	11	18	17	19	65	21.1	234,925.75	92,485½	....	....	....	....	19	9	3	11	13	9	1	...	7	20	58	92,465½
TOTALS	68	90	89	66	313	100.0	$ 954,031.02	474,244¼	2	2	....	8	69	24	28	53	90	32	5	...	30	2,929½	283	471,314¾
Per cent	21.7	28.8	28.4	21.1					.6	.6	....	2.7	22.1	7.5	8.9	16.9	28.8	10.3	1.6	....	9.6		90.4	

ANNUAL SUMMARY OF FOREST FIRE LOSSES, ALBERTA—CALENDAR YEAR, 1940

FIRE CAUSES	NUMBER OF FIRES: CLASS A	B	C	D	Total	LANDS AFFECTED: Ownership: Public, Acres	Private, Acres	AREA: Total, Acres	CONDITION: Merchantable Timber, Acres	Cut-over Timber, Acres	Young Growth, Acres	Not Forested, Acres	LOSS: TIMBER (MERCHANTABLE AND CUT-OVER): SALVABLE: Saw-timber, M.ft.B.M.	Other, Cords	Depreciation	UNSALVABLE: Saw-timber, M.ft.B.M.	Other, Cords	Loss	Loss of Timber	Loss of Young Growth	Loss of Other Property	Total Loss	SUPPRESSION COSTS: Ranger Service	Other Expenditures	Total	Burning Permits Issued
FIRES WITHIN FOREST RESERVES																										
Campers	2	1			3	2		2				2											$ 138.88	$ 163.39	$ 302.27	
Smokers	1	2			3	2,029½		2,029½	175½		1,854		1,000	570		3	5	$ 2,437.25	$ 2,437.25	$ 9,270.00		$ 11,707.25	176.23	3,775.57	3,951.80	
Settlers																										
Railways																										
Lightning	1	1	3		5	476		476	360		100	16					3,420	1,552.50	1,552.50	375.00		1,927.50	200.75	955.00	1,155.75	
Industrial Operations		1			1	1		1	¾			¼					2	5.50	5.50			5.50	25.59	2.00	27.59	
Incendiary	7	1	2		10	401		401		40	270	91		160			2	61.50	61.50	462.50		524.00	124.86	1,229.72	1,354.58	
Unclassified	1				1																			3.24	3.24	
Unknown	3	4			7	20		20			20												124.70	79.88	204.58	
Public Works																										
TOTALS	15	10	5		30	2,929½		2,929½	536¼	40	2,244	109¼	1,000	730		3	3,429	$ 4,056.75	$ 4,056.75	$ 10,107.50		$ 14,164.25	$ 791.01	$ 6,208.80	$ 6,999.81	
FIRES OUTSIDE FOREST RESERVES																										
Campers	21	24	20	14	70	89,411½	170½	89,582	36,578½	43	22,554½	30,406		75		67,254½	80,265	$102,709.75	$102,709.75	$ 35,509.75	$50.00	$ 138,269.50	$ 942.98	$ 14,725.51	$ 15,668.49	
Smokers	4	4	2	2	12	10,874	1½	10,875½	2,813	10½	4,340½	3,711½				10,883	329	11,094.20	11,094.20	4,211.82		15,306.02	165.22	780.35	945.57	
Settlers	5	13	16	4	38	4,521	2,514¾	7,035¾	720	342	2,255	3,718¾					4,299	1,415.00	1,415.00	2,840.75		4,255.75	248.07	3,996.87	4,244.94	
Railways	6	10	3	2	21	85,175	10½	85,185½	55,180		15,850	14,155½				10,350	349,090	148,503.75	148,503.75	29,112.50		177,616.25	194.60	4,910.51	5,105.11	
Lightning	1		2	1	4	2,950		2,950	1,270		1,050	630				5½	1,350	5,937.50	5,937.50	843.75		6,781.25	111.45	991.35	1,102.80	
Industrial Operations	1				1																			12.20	12.20	
Incendiary	1	3	8	6	18	22,814	700	23,514	4,172	5,316½	4,240½	9,785				5,411½	67,468	29,830.25	29,830.25	7,025.00		36,855.25	359.98	4,075.06	4,435.04	
Unclassified	6	12	16	18	52	159,001½	705	159,706½	19,770½	7,080	118,028½	14,827½				32,827	104,566	106,643.50	106,643.50	219,213.50		325,857.00	385.04	12,764.30	13,149.34	
Unknown	8	14	17	19	58	90,796½	1,669	92,465½	21,996½	2,116	37,099	31,254	200	75	$ 300.00	15,129½	168,369	173,683.75	173,983.75	60,942.00		234,925.75	668.16	13,659.42	14,327.58	
Public Works																										
																						Miscellaneous Expenditure		1,240.60	1,240.60	
TOTALS	53	80	84	66	283	465,543½	5,771¼	471,314¾	142,500½	14,908	205,418	108,488¼	200	150	$ 300.00	141,861	775,736	$579,817.70	$580,117.70	$359,699.07	$50.00	$ 939,866.77	$ 3,075.50	$ 57,156.17	$ 60,231.67	
FIRES WITHIN AND WITHOUT FOREST RESERVES																										
Campers	23	25	20	14	82	89,413½	170½	89,584	36,578½	43	22,554½	30,408		75		67,257½	80,265	$102,709.75	$102,709.75	$ 35,509.75	$50.00	$ 138,269.50	$ 1,081.86	$ 14,888.90	$ 15,970.76	
Smokers	5	6	2	2	15	12,903½	1½	12,905	2,988½	10½	6,194½	3,711½	1,000	570		10,883	334	13,531.45	13,531.45	13,481.82		27,013.27	341.45	4,555.92	4,897.37	
Settlers	5	13	16	4	38	4,521	2,514¾	7,035¾	720	342	2,255	3,718¾					4,299	1,415.00	1,415.00	2,840.75		4,255.75	248.07	3,996.87	4,244.94	
Railways	6	10	3	2	21	85,175	10½	85,185½	55,180		15,850	14,155½				10,350	349,090	148,503.75	148,503.75	29,112.50		177,616.25	194.60	4,910.51	5,105.11	
Lightning	2	1	5	1	9	3,426		3,426	1,630		1,150	646				5½	4,770	7,490.00	7,490.00	1,218.75		8,708.75	312.20	1,946.35	2,258.55	
Industrial Operations	1	1			2	1		1	¾			¼					2	5.50	5.50			5.50	25.59	14.20	39.79	
Incendiary	8	4	10	6	28	23,215	700	23,915	4,172	5,356½	4,510½	9,876		160		5,411½	67,470	29,891.75	29,891.75	7,487.50		37,379.25	484.84	5,304.78	5,789.62	
Unclassified	7	12	16	18	53	159,001½	705	159,706½	19,770½	7,080	118,028½	14,827½				32,827	104,566	106,643.50	106,643.50	219,213.50		325,857.00	385.04	12,767.54	13,152.58	
Unknown	11	18	17	19	65	90,816½	1,669	92,485½	21,996½	2,116	37,119	31,254	200	75	$ 300.00	15,129½	168,369	173,683.75	173,983.75	60,942.00		234,925.75	792.86	13,739.30	14,532.16	
Public Works																										
																						Miscellaneous Expenditure		1,240.60	1,240.60	
TOTALS	68	90	89	66	313	468,473	5,771¼	474,244¼	143,036¾	14,948	207,662	108,597½	1,200	880	$ 300.00	141,864	779,165	$583,874.45	$584,174.45	$369,806.57	$50.00	$ 954,031.02	$ 3,866.51	$ 63,364.97	$ 67,231.48	
SUMMARY BY DIVISIONS																										
*N.A.F.D.	45	80	79	66	270	465,292½	5,756¼	471,048¾	142,475½	14,858	205,243	108,472¼				141,858	775,736	$579,624.20	$579,624.20	$359,158.07	$50.00	$ 938,832.27	$ 2,845.04	$ 55,908.62	$ 58,753.66	
Clearwater	6	3	5		14	512½	15	527½	360½	50	100	17	200		$ 300.00	6	3,425	1,568.25	1,868.25	400.00		2,268.25	304.37	1,733.94	2,038.31	
Crowsnest-Bow River	7	1	3		11	2,200		2,200	200¾		1,999	¼	1,000	820			2	2,620.50	2,620.50	9,586.00		12,206.50	351.04	5,212.24	5,563.28	
Brazeau-Athabaska	10	6	2		18	468		468		40	320	108		60			2	61.50	61.50	662.50		724.00	366.06	510.17	876.23	
Cypress Hills																										
TOTALS	68	90	89	66	313	468,473	5,771¼	474,244¼	143,036¾	14,948	207,662	108,597½	1,200	880	$ 300.00	141,864	779,165	$583,874.45	$584,174.45	$369,806.57	$50.00	$ 954,031.02	$ 3,866.51	$ 63,364.97	$ 67,231.48	

*N.A.F.D.—Northern Alberta Forest District

SUMMARY SHOWING TOTAL NUMBER OF FIRES AND BURNT OVER AREA FROM 1931 TO 1940 INCLUSIVE

Year	Total No. of Fires	Total Acreage	Not Forested	Net Acreage
1931	622	604,876.12	209,064.75	395,811.37
1932	379	136,117.89	68,253.42	67,864.47
1933	288	93,765	30,955.88	62,809.12
1934	240	58,870	21,656.5	37,213.5
1935	97	6,319.75	3,267.75	3,052
1936	248	204,454	46,534	157,920
1937	375	835,259	155,069.5	680,189.5
1938	521	1,758,345.5	842,384	915,961.5
1939	499	429,139.25	159,774.5	269,364.75
1940	313	474,244.25	108,597.5	365,646.75
TOTALS	3,582	4,601,390.76	1,645,557.80	2,955,832.96

Looking north-west from the Blue Hill Lookout in Rocky Mountains Forest Reserve

Radio.—Radio communication began as usual with the opening of look-out stations, all of which were manned by May 8th.

During the preceding winter all portable equipment in use during the previous fire season had been completely serviced, and the Brazeau look-out installation was completed on the 23rd of May. The tower and necessary buildings had been completed the previous autumn.

Additional receivers, developed and designed by Forest Service personnel, were supplied to all look-out towers. These receivers were intended for stand by use in order that the look-out towers could, if necessary, be called at any time during the daylight hours. The receivers are small, self-contained, dry battery Superhetrodynes, using the new 1.4 volt type tube, which insures extremely economical operation. They are, in addition, equipped with a signalling device to call the operator to his post if he happens to be absent at the time the call is made for his station.

Land was secured from the City of Edmonton and a building designed to house the radio equipment for headquarters station in Edmonton. Necessary construction and test equipment was completed and the headquarters transmitters and receivers were installed. This building is located on the outskirts of the City of Edmonton to avoid, as far as possible, high interference levels.

Additional portable equipment was purchased at the beginning of the season and distributed in the Lesser Slave area of the Northern Alberta Fireranging District, and headquarters at Slave Lake was equipped with a radio transmitter receiver and power plant, similar to those already installed at look-out stations.

By the addition of this portable equipment, 37 portable radio sets were in operation during the season, as compared with 17 the previous year.

The personnel in this area was instructed in the use of these sets at the start of the season and appeared to have very little difficulty in handling them to the best advantage.

The addition and distribution of the portable telephones greatly facilitates rapid communication in the area, as it enables the Chief Ranger to contact the men under his supervision at stated intervals when desired.

Tentative arrangements were also made for proposed sites for headquarters stations to be located at Calgary, Grande Prairie and Lethbridge. These sites were all surveyed for noise level and general reception conditions by the Radio Superintendent during the late fall and early winter months, and all information obtained was placed on file for future reference.

In view of the shortage of trained radio operators due to war conditions and the enlistments by young men in the armed forces, it was decided to attempt to train girls to be utilized as headquarters stations operators. Lecture notes were prepared and lectures given twice weekly by the radio personnel to some fifty young ladies from different departments of the Government who had evinced a desire to learn radio theory and operating. It is regretted that the results obtained were not all that was expected. As the shortage of male operators becomes more and more apparent it is probable that further efforts along these lines will have to be made in order that the operation staff may be maintained.

All portable equipment was overhauled following a pre-determined routine which analyzes all circuits comprising the equipment, and records are kept of each piece of equipment, covering repairs made, circuit conditions, etc. In making these tests, utilizing all equipment which is owned by or is available to the Department, each set is put through a series of tests, the results of which must correspond to pre-determined standards, and if not, rebuilding or readjusting of the entire set is made until the desired results are obtained.

In spite of the fact that over forty per cent of the radio personnel were new to the Forest Service at the start of the fire season, the equipment functioned in an extremely satisfactory manner, and maintenance and repair costs were low.

Personnel.—Owing to enlistments in His Majesty's forces, it was found necessary to make a number of changes in the Forestry staff as well as in the ranger personnel. Twenty-one members of the Forest Service have joined the different branches of His Majesty's armed forces and the loss of these men has necessitated a great many changes and replacements.

The work of the personnel of the Forest Service again calls for favourable comment, both in the field and in the office. The work has been done systematically, satisfactorily and as expeditiously as is humanly possible.

Fire-fighting Equipment.—The curtailment of the purchase of equipment until actual necessity at the time of large fires, eliminates the possibility of securing standardized material on a competitive basis, also the possibility of distribution well in advance of the actual requirements. This equipment is not perishable and, if not actually needed during the year it is purchased, it can be stored and kept in readiness for immediate use when required.

This is carried out by practically all protective services both in Canada and in the United States, and the adoption of such a policy in this Department would assure the securing of standard equipment at competitive prices, and eliminate the purchasing of only what is available when the emergency arises.

Upper picture.—Loading logs on truck-sleigh. Half the weight rests on the truck and half on the sleigh
Lower picture.—Some of the same logs at the saw-mill

Forest Administration

Provincial Forest Reserves.—This section of the report deals with timber disposal from the forest reserves.

In comparison with preceding years the statement with respect to this item shows a substantial increase. The major influences affecting this increase were the general requirements brought about by the war for large quantities of lumber and also the additional quantities of mine props required in different mines, especially those producing steam coal. Greater quantities of this fuel were required by the railways in moving the bumper crop of 1940, as well as in the transport of the large amount of material, provisions, etc., moved to the Atlantic seaport.

TIMBER CUT UNDER PERMIT, ALBERTA FOREST RESERVES—FISCAL YEAR 1940-41

	Cypress Hills	Crowsnest-Bow River	Clearwater	Brazeau-Athabaska	Totals
Number of permits	245	224	28	28	525
Fuelwood, dry (cords)	690	2,663	259	99	3,711
Fuelwood, green (cords)	.....	258	80	.....	338
Mine timber, dry (lineal feet)	.....	230,500	4,974	.....	235,474
Mine timber, green (lineal feet)	.....	.....	496	.....	496
Lagging (Cords)	.....	.....	9	.....	9
Lagging (lineal feet)	.....	37,400	.....	.....	37,400
Fence posts	13,970	7,593	600	200	22,363
Sawlogs (F.B.M.)	.....	529,600	.....	.....	529,600
Round timber (pieces)	6,846	10,762	5,682	100	23,390
Round timber (lineal feet)	.....	27,077	6,259	6,610	39,946
Fence droppers (pieces)	.....	2,320	.....	.....	2,320
Fence droppers (cords)	.....	.....	.....	.....	.....
Telephone poles (pieces)	.....	.....	.....	50	50
Telephone poles (lineal feet)	.....	1,500	.....	3,000	4,500
Railway ties (pieces)	.....	.....	.....	1,900	1,900
Tram ties (lineal feet)	.....	.....	.....	12,500	12,500
Fence droppers (lineal feet)	.....	600	.....	.....	600
Mine ties (lineal feet)	.....	.....	787	.....	787
Christmas trees	.....	11	.....	.....	11

TIMBER OPERATIONS ON FOREST RESERVE TIMBER SALES—FISCAL YEAR 1940-41

	Crowsnest-Bow River	Clearwater	Brazeau-Athabaska	Totals
Number of active operations	22	2	12	36
Lumber, feet, board measure	7,722,307	114,543	669,861	8,506,711
Railway ties	.....	23,211	43,434	66,645
Piling	5,379	.....	.....	5,379
Mine timber, lineal feet	497,909	758,411	917,728	2,174,048
Lagging, lineal feet	245,062	31,416	5,866	282,344
Telegraph and telephone poles, lineal feet	18,522	.....	.....	18,522
Building logs and culvert timber, lineal feet	5,016	.....	3,000	8,016
Fence posts	271	.....	.....	271
Fuelwood, cords	221	.....	84	305
Mine ties, number	.....	.....	3,570	3,570
Tramway ties, number	.....	.....	5,100	5,100
Switch ties	.....	.....	3,795	3,795

Provincial Lands.—The utilization of forest resources on all provincial lands under the administration of the Department reflected the increased demands to which previous reference has been made.

It is a pleasure to be able to report that, although the prices obtainable have not increased as they did during the years 1914-18, the prices set by the Timber Controller for the Dominion made possible a reasonable profit. It is also gratifying to note that the demand for dry seasoned lumber has been exceptionally heavy—in fact at the beginning of logging operations in the early winter of 1940, practically all stocks had been sold out and further orders had to be refused.

There were also increases in the production of mine timber and other forest products. The manufacture of railway ties, which constitutes the second most important product in the province, increased by 69.47 per cent over the previous year's figures, and contract prices were slightly increased by the railway companies to cover the higher labour charges and increased costs for provisions.

Provision was made by regulations to enable operators to secure larger areas of timber. This change in the regulations permits those so desiring to secure a larger area of timber, as well as a longer period of time to complete operations.

The new provision fills a long felt want because, in addition to providing a more continuous operation, it now permits the Department to dispose of larger areas, a factor which has not been possible since the transfer of the natural resources to provincial control.

The following table summarizes the timber business tranacted at Head Office for the Edmonton Office and also the land agencies at Calgary, Lethbridge and Peace River.

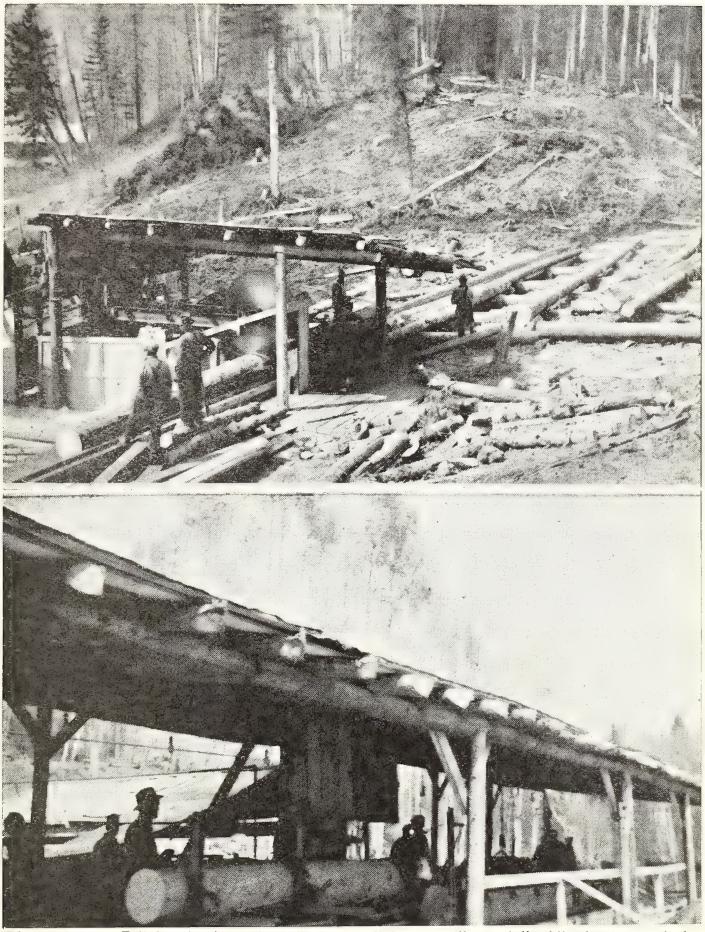
STATEMENT OF TIMBER OPERATIONS FOR 1940-41 ON PROVINCIAL LANDS IN THE EDMONTON DISTRICT AND IN THE CALGARY, PEACE RIVER AND LETHBRIDGE LAND AGENCIES

	Head Office, Edmonton District	Calgary Agency	Peace River Agency	Lethbridge Agency	Totals
(a) OPERATIONS ON LICENCE TIMBER BERTHS:					
Number of active operations	27	12	.....	.....	39
Lumber, feet, board measure	58,552,832	4,994,845	.....	.....	63,547,677
Railway ties	57,862	3,982	.....	.....	61,844
Mine timber, lineal feet	.....	1,595,269	.....	.....	1,595,269
Lath	1,666,060	.....	.....	.....	1,666,060
Fence posts	200	1,400	.....	.....	1,600
Fuelwood, cords	51	240	.....	.....	291
(b) OPERATIONS ON TIMBER PERMIT BERTHS:					
Number of active operations	191	25	.....	.....	216
Lumber, feet, board measure	71,109,811	7,638,796	.....	.....	78,748,607
Railway ties	904,790	16,585	.....	.....	921,375
Piling, lineal feet	13,860	.....	.....	.....	13,860
Mine timber, lineal feet	.....	15,000	.....	.....	15,000
Lath	167,778	432,378	.....	.....	600,156
Lagging, lineal feet	1,971	75,000	.....	.....	76,971
Telegraph and telephone poles, lineal feet	.....	18,547	.....	.....	18,547
Building logs and culvert timber, lineal feet	28,554	.....	.....	.....	28,554
Fence rails	2,254	.....	.....	.....	2,254
Fuelwood, cords	185	250	.....	.....	435
Shingles	160,000	.....	.....	.....	160,000
Switch ties	294	.....	.....	.....	294
(c) OPERATIONS UNDER SPECIAL TIMBER PERMITS: (Sec. 68 of the Timber Regulations)					
Number of active operations	234	41	.....	.....	275
Lumber, feet, board measure	7,068,484	1,027,752	.....	.....	8,096,236
Railway ties	242,030	13,241	.....	.....	255,271
Piling, lineal feet	8,060	.....	.....	.....	8,060
Mine timber, lineal feet	.....	4,000	.....	.....	4,000
Lagging, lineal feet	.....	3,700	.....	.....	3,700
Telegraph and telephone poles, lineal feet	20,065	12,502	.....	.....	32,567
Building logs and culvert timber, lineal feet	3,654	.....	.....	.....	3,654
Fence posts	25	.....	.....	.....	25
Fuelwood, cords	272	.....	.....	.....	272
Mine ties, number	972	.....	.....	.....	972
Shingles	10,000	.....	.....	.....	10,000
Lath	.....	665,000	.....	.....	665,000
*(d) TIMBER PERMITS ISSUED AUTHORIZING THE CUTTING OF MATERIAL SHOWN HEREUNDER:					
Number of permits issued	1,091	144	729	16	1,980
Building logs, lineal feet	25,056	17,403	39,127	.....	81,586
Mining timber, lineal feet	419,856	252,000	.....	.....	671,856
Telephone poles	86,225	7,500	22,500	.....	116,225
Piling, lineal feet	5,776	.....	5,268	.....	11,044
Lumber, feet, board measure	7,124,370	185,973	4,792,386	5,000	12,107,729
Fence posts	72,785	20,730	101,215	370	195,100
Roof poles	47,244	1,350	87,708	100	136,402
Fence rails	216,995	17,442	436,665	750	671,852
Fuelwood, cords	3,303	1,520	2,293	134	7,250
Railway ties	12,670	1,680	300	.....	14,650
Shingles	230,000	.....	54,000	.....	284,000
Shingle bolts, cords	170 1/3	.....	284	.....	454 1/3
Lath bolts	20	.....	.....	.....	20

*The figures shown under this heading are the amounts authorized to be cut. The amounts actually cut under this heading are not available.

SUMMARY OF TIMBER OPERATIONS ON PROVINCIAL LANDS, 1940-41

	Licensed Timber Berths	Permit Timber Berths	Provincial Lands Timber Permits		Forest Reserve		Totals
			Special (Sec. 68)	Other Permits	Timber Sales	Timber Permits	
Number of active operations	39	216	275	1,980	36	525	3,071
Lumber (feet, board measure)	63,547,677	78,748,607	8,096,236	12,107,729	8,506,711	529,600	171,536,560
Railway ties	61,844	921,375	253,271	14,650	66,645	1,900	1,321,685
Piling (lineal feet)	.....	13,860	8,060	11,044	5,379	.....	38,343
Mine timber (lineal feet)	1,595,269	91,971	7,700	671,856	2,456,392	282,370	5,105,558
Telegraph and telephone poles (lineal feet)	.....	18,547	32,567	116,225	18,522	5,750	191,611
Building logs and culvert timber (lineal feet)	.....	28,554	3,654	81,586	8,016	39,946	161,756
Fence rails	.....	2,254	.....	671,852	.....	.....	674,106
Fence posts	1,600	.....	25	195,100	271	22,363	219,359
Fence droppers	.....	.....	.....	.....	.....	2,440	2,440
Roof poles	.....	.....	.....	136,402	.....	.....	136,402
Fuelwood (cords)	291	435	272	7,250	305	4,049	12,602
Mine ties (number)	.....	.....	972	.....	3,570	175	4,717
Shingles	.....	160,000	10,000	284,000	.....	.....	454,000
Shingle bolts (cords)	.....	.....	.....	454 1/3	.....	.....	454 1/3
Lath	1,666,060	600,156	665,000	.....	.....	.....	2,931,216
Lath bolts (cords)	.....	.....	.....	20	.....	.....	20
Tramway ties	.....	.....	.....	.....	5,100	1,562	6,662
Christmas trees	.....	.....	.....	.....	.....	11	11
Round timber (pieces)	.....	.....	.....	.....	.....	23,390	23,390
Switch ties	.....	294	.....	.....	3,795	.....	4,089
Number of inspection reports submitted by timber inspectors	.....	.....	.....	.....	.....	.....	2,758
Number of timber seizures made	.....	.....	.....	.....	.....	.....	206



Upper picture.—Full length of tree hauled to saw-mill by caterpillar and "arch", showing method of cutting into log lengths at the mill

Lower picture.—The same log on the carriage at the portable saw-mill

Grazing

Grazing on the Rocky Mountain forest during the year under review was excellent. Cattle, when they entered the reserves in the spring, were mostly in fair condition and due to an exceptionally favourable year for the growing and ripening of forage plants, most stock left the summer grazing areas beef fat.

In the Cypress Hills grazing conditions were also very good, and a high percentage of the stock left the range ready for market.

GRAZING STATEMENT—ALBERTA FOREST SERVICE, 1940-41

Forest	No. of Permits	No. of Horses	No. of Cattle	No. of Sheep
Cypress Hills	51	436	2,268	.....
Crowsnest-Bow River	273	2,038	21,376	3,904
Clearwater	30	361	.....	.....
Brazeau-Athabaska	81	359	187	50
TOTALS	435	3,194	23,831	3,954

COMPARATIVE STATEMENT, GRAZING—ALBERTA FOREST SERVICE

	1931	1932	1933	1934	1935	1936
Number of permits	456	606	493	517	533	497
Number of cattle	15,041	20,086	20,230	22,557	25,097	23,407
Number of horses	3,417	3,377	3,185	2,541	2,207	2,441
Number of sheep	4,379	7,465	6,705	3,078	4,114	5,443

	1937	1938	1939	1940	Totals	Average
Number of permits	529	437	482	435	4,985	498.5
Number of cattle	18,921	22,280	22,386	23,831	213,836	21,383.6
Number of horses	3,418	3,024	2,731	3,194	29,535	2,953.5
Number of sheep	3,174	4,791	6,883	3,954	49,986	4,998.6

Improvements

The period under review was very favourable generally in all parts of the province, with the exception of the north-eastern section, for the carrying out of improvement work, as fires did not greatly interfere with regular routine work.

Throughout the season existing improvements were maintained; trails and roads were kept open and lines of communication were maintained in working order.

IMPROVEMENT STATEMENT

NEW CONSTRUCTION PROJECTS:

Forest	Houses	Garages, Sheds, etc.	Fences	Fields (breaking in acres)	Water Supply Systems	Barns and Stables	Telephones (miles)	Corrals	Bridges	Look-out Towers	Trails (Miles)	Cabins	Fireguard Roads (Miles)	Tourist Stoves	Miscellaneous
Cypress Hills	....	....	....	....	1	...	6	....	....	....	....	....	....	....	1
Crowsnest	....	....	....	....	....	....	....	....	....	....	....	....	18	....	1
Bow River	1	2	....	....	....	1	....	....	....	....	3½	2	....	....	....
Clearwater	....	1	....	....	....	....	....	....	....	....	....	1	....	....	....
Brazeau	1	2	3	....	....	....	5 1/10	....	....	....	8	1	....	....	1
Athabaska	....	....	....	....	....	....	....	....	....	1	....	....	3	....	1
TOTALS	2	5	3	....	1	1	11 1/10	....	....	1	11½	4	21	....	4

MAINTENANCE PROJECTS:

Forest	Houses	Cabins	Barns and Stables	Telephones (Miles)	Trails (Miles)	Roads (Miles)	Fences	Corrals	Water Supply Systems	Garages, Sheds, etc.	Look-out Towers and Cabins	Grounds	Hay Meadows & Pastures	Ferries	Miscellaneous
Cypress Hills	1	1	1	27	....	60	1	1	....	1	....	....	....	....	1
Crowsnest	7	3	4	161	198½	125 1/5	16	1	3	6	....	....	....	....	17
Bow River	6	9	6	297	603	122½	20	7	6	8	....	....	....	....	27
Clearwater	3	9	2	176½	668	2	6	....	1	5	1	....	....	....	4
Brazeau	3	4	2	169	263½	15	7	....	....	2	2	....	....	....	1
Athabaska	2	14	3	83½	440	81	6	4	1	3	....	....	....	....	2
TOTALS	22	40	18	914	2,173	405 7/10	56	13	11	25	3	....	....	....	52

IMPROVEMENTS—STATEMENT OF MAN-DAYS WORKED

NEW CONSTRUCTION PROJECTS:

Forest	Houses	Garages, Sheds, etc.	Fences	Fields (breaking) in acres	Water Supplies	Telephones (miles)	Corrals	Barns and Stables	Bridges	Look-out Towers	Trails (miles)	Cabins	Fireguard Roads (miles)	Tourist Stoves	Miscellaneous
Cypress Hills	....	....	....	....	29	....31½	....	....	....	....	....	....	....	....	....
Crowsnest	....	4	....	....	....	....	....	....	....	....	....	....	87	....	7½
Bow River	24	3	....	....	....	....	....	56½	....	....	9	140½	....	....	33½
Clearwater	2	....	....	....	....	....	....	....	....	....	....	37	....	....	27½
Brazeau	9½	27½	77½	....	....	80½	....	....	....	27	6	6	....	5½	3½
Athabaska	2	....	....	....	....	7	....	....	....	119½	84	....	....	....	6
TOTALS	37½	34½	77½	....	29	119	....	56½	....	146½	99	183½	87	5½	78

MAINTENANCE PROJECTS:

Forest	Houses	Cabins	Barns and Stables	Telephones (miles)	Trails (miles)	Roads (miles)	Fences	Corrals	Water Supplies	Garages, Sheds, Etc.	Look-out Towers and Cabins	Grounds	Hay Meadows & Pastures	Ferries	Miscellaneous
Cypress Hills	6½	1½	2	21½	....	26	1½	½	2½	2	....	26½	....	....	....
Crowsnest	29	8½	9½	230½	50	153	114	2	1½	7½	....	85½	19½	....	22
Bow River	46	26	21	345½	303½	299½	281	43½	8	11	....	87½	20½	....	10
Clearwater	15½	5½	4	276½	284	33½	44	....	10	14	3	3	22	14	27
Brazeau	32	18½	18½	197½	230	....	43	....	2½	15	26	....	8	....	46½
Athabaska	9½	45½	4	97½	211	191½	37	25	3½	9	....	5	24½	....	7
TOTALS	138½	105½	59	1,169	1,078½	703½	520½	71	28	58½	29	207½	94½	14	112½

Publicity

Publicity regarding forest protection is one part of the Forestry work in which there is little if any evidence as to substantial progress having been made. Although forest protection is largely a matter of public responsibility it becomes, nevertheless, constantly necessary to keep informing citizens from time to time of this responsibility. To forget or become careless of one's duty is one of the commonest of human traits.

The necessity of constantly reminding the public is fully recognized. The numerous enlistments and shortage of staff, however, has not permitted the required time to prepare and deliver addresses and to write articles.

Nursery and Tree Distribution

Nursery.—The growing of trees from seed has continued at the Oliver Mental Institute and the Fort Saskatchewan and Lethbridge gaols. The work has been carried out as in previous years, and very favourable reports have been received from different settlers who have received and planted trees on their farms.

The season under review was one of normal rainfall and most young trees came through the summer months in good condition, and the loss of young transplants was very light.

The stage has now been reached whereby experiments in growing Bur oak in the province may be called successful. Trees have been produced from seed which bore acorns showing good germination tests, and it is fully hoped that by next year it will be possible to report the reproduction of oak seedlings from Alberta grown acorns.

Success with Red oak and a number of other exotic species is continuing, and it is hoped that the same success as experienced with the Bur oak may be obtained. The experiment has not, however, been of as long duration with the Red oak as with the latter species, and has not, therefore, yet arrived at the reproduction stage.

Distribution of trees was carried out throughout the province as in former years. Reports as to the healthy condition of transplants from the nurseries continue to be most encouraging and farmers are becoming more and more cognisant of the value and benefits of wind-breaks and shelter-belts on their land.

STATEMENT OF SEEDING DONE AT THE OLIVER NURSERY IN 1940

16,000	White spruce (*Picea glauca*)
7,000	Sitka spruce (*Picea sitchensis*)
3,200	Blue spruce (*Picea pungens*)
15,600	Lodgepole pine (*Pinus murrayana*)
2,400	Yellow pine (*Pinus ponderosa*)
2,880	Red pine (*Pinus resinosa*)
12,500	Douglas fir (*Pseudotsuga mucronata*)
8,640	Siberian larch (*Larix sibirica*)
400	Elm (*Ulmus*)
14,000	Lilac (*Syringa japonica*)

Tree Distribution.—The following species and quantities were given out from Oliver in the spring of 1941:

Transplants:		
White spruce (*Picea glauca*)	31,162	
Lodgepole pine (*Pinus murrayana*)	19,482	
Red pine (*Pinus resinosa*)	8,575	
Scotch pine (*Pinus sylvestris*)	380	
Green ash (*Fraxinus pennsylvanica*)	13,342	
Red oak (*Quercus rubra*)	5,142	
Bur oak (*Quercus macrocarpa*)	4,205	
Siberian larch (*Larix sibirica*)	1,464	
American elm (*Ulmus americana*)	2,587	
		86,339

Cuttings:		
Laurel-leaf willow (*Salix pentandra*)	15,145	
Golden willow (*Salix vitellina*)	4,250	
North-west poplar (*Populus*)	17,655	
		37,050
Seedlings:		
White spruce (*Picea glauca*)	20,000	
Colorado spruce (*Picea pungens*)	2,000	
Norway spruce (*Picea excelsa*)	500	
Sitka spruce (*Picea sitchensis*)	25	
Siberian larch (*Larix sibirica*)	1,000	
Cedar (*Thuja occidentalis*)	100	
		23,625
Ornamental Species:		
Native hawthorne (*Crataegus*)	138	
Catalpa (*Catalpa bignonioides*)	2	
Honeysuckle (*Lonicera ciliosa*)	182	
Elderberry	20	
Flowering almond (*Prunus triloba*)	3	
Eastern cedar (*Thuja occidentalis*)	12	
		357
		147,371

The following species and quantities were given out from Lethbridge in the spring of 1941:

Transplants:	
White spruce (*Picea glauca*)	1,950
Lodgepole pine (*Pinus murrayana*)	2,025
Green ash (*Fraxinus pennsylvanica*)	975
	4,950

MILEAGE TRAVELLED BY EMPLOYEES OF THE ALBERTA FOREST SERVICE

FISCAL YEAR 1940-41

Divisions	Foot	Saddle	Driving	Speeder	Auto	Canoe	Rowboat	Motorboat	Plane	Railway	Other	Totals
Northern Alberta Forest District	14,922 ¼	39,681	12,076 ½	21,125 ½	86,980	1,191	149	4,461	.....	14,712	355	195,653 ¾
Crowsnest-Bow River Forest	4,448	32,450	3,747	.....	72,009	.....	.....	25	.....	272	.....	112,951
Clearwater Forest	3,203	11,430	2,268 ¼	305	16,571	.....	.....	.....	.....	40	52	33,869 ¼
Brazeau-Athabaska Forest	3,412	15,278	1,914	6,527	9,978	.....	.....	.....	.....	3,212	.....	40,321
Cypress Hills Forest	30	1,361	54	.....	7,562	.....	.....	.....	.....	.....	.....	9,007
Radio Division	170	705	.....	.....	19,295	.....	.....	.....	.....	830	.....	21,000
TOTALS	26,185 ¾	100,905	20,059 ¾	27,957 ½	212,395	1,191	149	4,486	.....	19,066	407	412,802

Mining Lands Administration

REPORT OF THE SUPERINTENDENT OF MINING LANDS, J. W. HAMILTON

The two principal mining industries in the province, coal and petroleum, showed a marked increase in production for the calendar year of 1940 over the previous year. The increase in the output of coal was almost 700,000 tons and the increase in petroleum, 900,000 barrels.

Production totals of Alberta's non-metallic minerals secured during the calendar year 1940 were as follows:—coal, 6,205,088 tons; petroleum, 8,495,207 barrels; natural gas, 26,402,299 thousands of cubic feet; salt, 8,524 tons and sodium sulphate, 10 tons. The tonnage of clays produced is not known, but totals in the production of other structural minerals were cement, 414,183 barrels; lime, 16,872 tons; sand and gravel, 1,638,068 tons; and stone, 20,890 tons.

The total value of minerals produced was approximately $30,902,851 of which coal was valued at $16,334,323; petroleum, $10,508,741; natural gas, *$1,056,089; salt, $85,238; sodium sulphate, $50. Valuations of structural materials were clay products, $838,856; cement, $832,508; lime, $149,720; sand and gravel, $1,046,867; stone, $42,173; and miscellaneous, $8,286.

Mineral rights, solid, liquid and gaseous, the property of the Crown, are not sold but are disposed of by lease, reservation, permit or grant for limited periods of time. The Mining Lands Division is responsible for the administration of regulations governing these rights on both provincial and school lands. Revenue is obtained from fees, rentals, bonuses and royalties and during the fiscal year a total of $1,107,989.96 was received.

The activity under the regulations for the establishment of reservations on large areas for geological examination continued and during the fiscal year 638,889 acres were acquired under the regulations, which exceeded the previous year by more than 150,000 acres. These regulations, however, were rescinded in March, 1941, and new regulations became established governing the reservation of petroleum and natural gas rights for geological and/or geophysical examination, including any investigation relating to sub-surface geology. The application fee under the new regulation is $250.00 and the applicant must post a cash deposit of $750.00 for each 20,000 acres or part thereof when the application is for surface geological investigation, or $2,000.00 for each 20,000 acres or part thereof when the examination will include geophysical operations or investigation relating to sub-surface. The cash deposits are refundable on full compliance with the requirements under which the reservations are issued.

During the year 697 applications for mineral rights were made at the offices of the mining recorders at Edmonton, Calgary, Lethbridge and Peace River, which required the preparation of a similar number of files in the Division. Several enquiries were made daily as to the availability of mining rights mostly for petroleum and natural gas leases or reservations by personal application at the office and by correspondence. The Division dispatched, during the year under review, a total of 25,316 letters.

The natural resources of Alberta were transferred from the Dominion Government to the control of the Government of Alberta on October 1st, 1930, and the following tabulation shows the numbers and acreages of the various leases issued from that date to March 31st, 1941.

*Based on well-head valuation of 4 cents per Mcf.

Type of Lease	Active at date of transfer	Issued	Reinstated	Divided	Cancelled	Renewed	Active at March 31st, 1941
Petroleum and natural gas, provincial lands	16,899	7,992	51	316	21,450	140	3,668
Petroleum and natural gas, school lands	1,964	1,001	8	30	2,656	1	346
Petroleum and natural gas, crown reserve	5	20	....	....	25	....	....
Coal, provincial lands	620	363	1	4	547	108	333
Coal, school lands	60	26	1	....	54	7	26
Quarrying	45	53	....	....	48	....	50
Quartz mining	4	....	....	....	....	....	4
Salt	1	1	....	....	1	....	1
Bituminous sands	4	2	....	....	4	....	2
Miscellaneous	1	3	....	....	1	....	3
Dredging	32	8	....	....	38	....	2
TOTALS	19,635	9,469	61	350	24,824	256	4,435

ACREAGE CONTAINED IN ABOVE LEASES

Type of Lease	Active at date of transfer	Issued	Reinstated	Cancelled	Renewed	Active at March 31st, 1941
Petroleum and natural gas, provincial lands	2,263,076	1,638,974	10,895	3,043,368	19,714	849,863
Petroleum and natural gas, school lands	191,726	156,668	1,303	290,398	420	58,879
Petroleum and natural gas, crown reserve	6,160	22,561	.....	28,721	.....	.....
Coal, provincial lands	236,984	113,909	40	173,040	75,965	101,928
Coal, school lands	9,570	2,433	53	6,097	1,464	4,495
Quarrying	1,675	583	.....	1,006	.....	1,252
Quartz mining	182	.....	.....	.....	.....	182
Salt	200	6,721	.....	200	.....	6,721
Bituminous sands	3,952	2,063	.....	5,451	.....	564
Miscellaneous	3,560	323	.....	10	.....	3,873
TOTALS	2,717,085	1,944,235	12,291	3,548,291	97,563	1,027,757
Dredging (in miles)	145	24	.....	167	.....	2

STATEMENT OF BUSINESS TRANSACTED, 1940-41

PETROLEUM AND NATURAL GAS

	Number	Acres
Leases issued on provincial lands	500	121,434
Leases cancelled and relinquished on provincial lands	1,748	326,087.30
Leases reinstated on provincial lands	14	1,439
Leases issued on school lands	72	15,623
Leases cancelled and relinquished on school lands	221	45,500.25
Leases reinstated on school lands	1	120
Reservations granted	28	638,889
Reservations cancelled and relinquished	28	523,200
Fees, rentals and bonuses collected	$266,141.52	
Royalties collected	523,334.79	
TOTAL	$789,476.31	

COAL

	Number	Acres
Leases issued on provincial lands	9	371
Leases cancelled and relinquished on provincial lands	34	2,832.71
Leases issued on school lands	1	40
Leases reinstated on school lands	1	53
Leases cancelled and relinquished on school lands	8	294.15
Domestic permits issued	15	.....
Fees and rentals collected	$ 89,637.77	
Royalties collected	215,886.92	
TOTAL	$305,524.69	

QUARRYING

	Number	Acres
Leases issued	7	5
Leases cancelled and relinquished	4	40
Sand, stone and gravel permits issued	32	....
Fees and rentals collected	$ 1,253.95	
Royalties collected	4,691.25	
TOTAL	$ 5,945.20	

DREDGING

	Number	Area in Miles
Leases issued	2	2.50
Leases cancelled and relinquished	....	.....
Fees and rentals collected	$ 135.00	
Royalties collected	.....	
TOTAL	$ 135.00	

MISCELLANEOUS

	Number
Bituminous sands leases issued	....
Bituminous sands leases cancelled	....
Permits to collect bitumen issued	2
Quartz mining claims granted	10
Quartz mining certificates of work issued	1
Powers of Attorney (quartz) filed	....
Placer claims granted	37
Powers of Attorney (placer) filed	6
Bar-digging permits issued	....
Fees, rentals and royalties collected	$6,908.76

ASSIGNMENTS REGISTERED, 1940-41

Nature	Number
Petroleum and natural gas, provincial lands	502
Petroleum and natural gas, school lands	48
Coal, provincial lands	7
Coal, school lands	3
Quarrying	1
TOTAL	561

PETROLEUM AND NATURAL GAS

Development of Leases.—The regulations provide that approved expenditures incurred in actual development of petroleum and natural gas rights, acquired under lease or reservation, may be accepted in satisfaction of rentals which otherwise would be payable in cash. During the fiscal year under review, rentals due the province amounting to $757,187.27 were satisfied from such expenditures and so reduced the revenue of the Division by that amount. The total revenue received in cash for fees, rentals and bonuses was $266,141.52, which, added to the expenditures accepted in lieu of rentals, makes a total of $1,023,328.79.

Disposal by Public Tender.—Bonuses amounting to $3,741.13 were accepted during the fiscal year at sales by public tender of petroleum and natural gas rights formerly comprised in cancelled leases or reservations. Of this amount, $2,877.60 was applicable to provincial lands, and $863.53 to school lands.

Number and Area of Leases.—During the year 572 petroleum and natural gas leases were issued covering an area of 137,057 acres, of which 500, comprising 121,434 acres, represented provincial lands and 72, comprising 15,623 acres, were school lands.

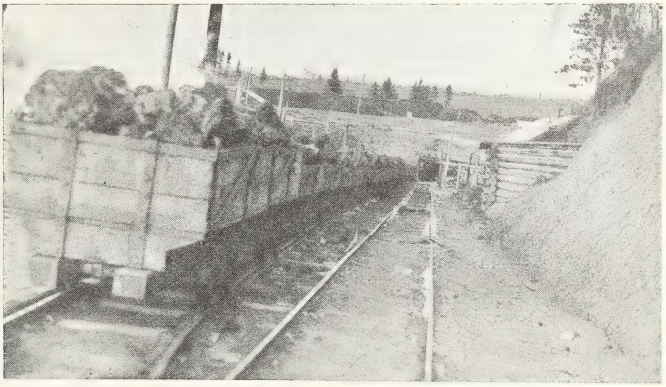
At the close of the fiscal year a total of 4,014 leases were active containing an area of 908,742 acres.

Reservations.—The regulations governing the reservation of large areas of petroleum and natural gas rights for geological examination which were established on the 7th day of September, 1937, were rescinded and cancelled on the 6th day of March, 1941. Twenty-eight reservations were granted in this fiscal year while these regulations were operative covering an area of 638,889 acres. A similar number of reservations was cancelled containing an area of 523,200 acres and at the close of the fiscal year 559,120 acres were still under reservation.

New regulations governing the reservation of petroleum and natural gas rights, the property of the Crown, for geological and/or geophysical examination, including any investigation relating to sub-surface geology were established on the 6th day of March, 1941, under Order in Council, No. 278/41. Although several applications were accepted pursuant to these regulations the reservation forms were not received from the printer by March 31st, 1941.

Coal

New coal leases may be granted either for the extension of existing operations or for small mines where the local market cannot be economically supplied from operating mines in the vicinity. In the fiscal year, 15 applications were considered and 10 leases issued containing 411 acres. There are now active 359 leases comprising 106,423 acres.



Coal-cars emerging from mine in the Nordegg area, Alberta

During the current fiscal year the following quantity of coal, subject to Crown royalty, was mined:—

	Tons
Provincial lands' leases	2,881,647
School lands' leases	321,263
Coal lands' and mineral sales	726,902
TOTAL	3,929,812

Crown royalties collected on coal mined in Alberta since April 1st, 1907, are given on the next page. In comparison with similar statements appearing in the Annual Reports of previous years, it will be noticed that a correction has been made, which shows the totals from the latter half of the fiscal year 1930-31 onward as subdivided into royalties collected on coal recovered from provincial lands and also from school lands.

CROWN ROYALTIES COLLECTED ON COAL

Fiscal Year	Royalty Paid	Fiscal Year	Royalty Paid
1907-08	$ 7,621.67	1920-21	$ 190,545.80
1908-09	5,322.39	1921-22	185,436.88
1909-10	153,559.98	1922-23	171,723.83
1910-11	218,932.88	1923-24	210,389.53
1911-12	104,894.55	1924-25	148,979.10
1912-13	142,997.79	1925-26	188,277.94
1913-14	147,198.75	1926-27	218,150.10
1914-15	104,489.77	1927-28	231,757.96
1915-16	67,190.17	1928-29	254,616.27
1916-17	149,447.82	1929-30	248,083.71
1917-18	144,634.75	1930-31 (First half)*	90,052.07
1918-19	175,687.66		
1919-20	181,641.80		$3,741,633.17

	Provincial Lands	School Lands	
1930-31 (Last half)*	$105,126.51	$ 5,014.29	110,140.80
1931-32	145,170.33	6,354.09	151,524.42
1932-33	143,800.01	4,971.78	148,771.79
1933-34	193,527.82	9,520.13	203,047.95
1934-35	176,122.43	12,365.39	188,487.82
1935-36	186,691.23	19,779.76	206,470.99
1936-37	175,214.33	18,596.00	193,810.33
1937-38	158,227.11	15,159.15	173,386.26
1938-39	143,070.78	9,270.23	152,341.01
1939-40	168,802.75	7,812.78	176,615.53
1940-41	200,045.68	15,841.24	215,886.92
TOTAL			$5,662,116.99

*Date of transfer of Alberta's natural resources from federal to provincial control, and date also of the creation of the Department of Lands and Mines, Alberta, October 1st, 1930.

Permits for Domestic Use.—Permits to mine coal on provincial lands by strip-mining methods for domestic use may be issued to actual settlers on payment of a fee of one dollar and royalty at the rate of ten cents a ton. During the year 15 permits were issued authorizing an extraction of 286 tons, none of which could be bartered or sold.

Quarrying

One quarrying lease was issued on surveyed lands containing an area of five acres and six leases were issued during the fiscal year for removing gravel from the bed of the North Saskatchewan River. Extraction of 215,421 cubic yards of sand, gravel, limestone and shale from provincial lands was reported for the calendar year of 1940.

At the close of the fiscal year, 50 leases were active containing an area of 1,252 acres.

Permits.—Sand, stone and gravel permits are issued on the beds of rivers and lakes at a fee of $2.50 and a royalty of five cents a cubic yard and expire on the 30th day of November following the date of issue. In this fiscal year 32 permits were issued for the extraction of 39,604 cubic yards.

Dredging

Two dredging leases were issued covering two and one-half miles of the bed of the Athabaska River for operation in conjunction with the placer claims along the river bank in townships 63 and 64, range 3, west of the 5th meridian.

Quartz

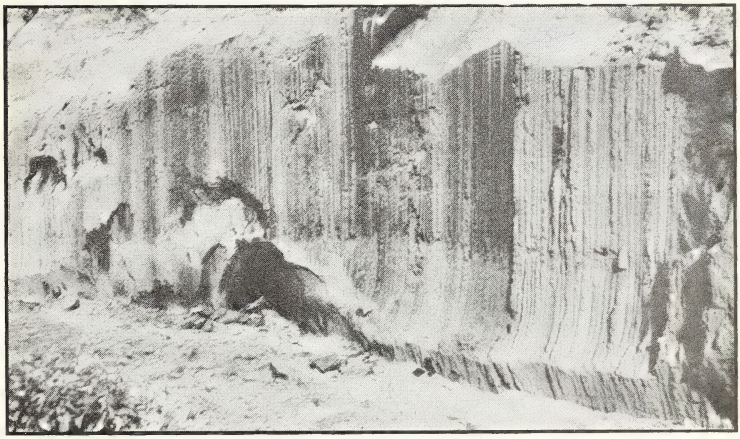
There was no new activity during the fiscal year and no new claims were recorded. The claim in the Drumheller district for the recovery of bentonite was renewed. Royalty of $53.77 was paid on this claim representing 2½% of the value of the bentonite recovered.

The four quartz leases covering 181.8 acres issued by the Department of the Interior are still active.

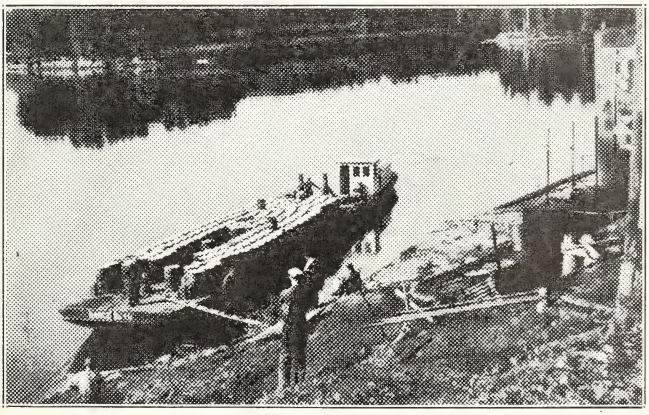
...iver mining district. Rec...
1... ...ig the year.

Bituminous Sands

Two leases are active at present in the McMurray area containing an area of 564 acres and two separation plants are experimenting on areas held under special development agreements but commercial production has not as yet been reported.



Bitumirous sand exposure, Horse River, McMurray, Northern Alberta

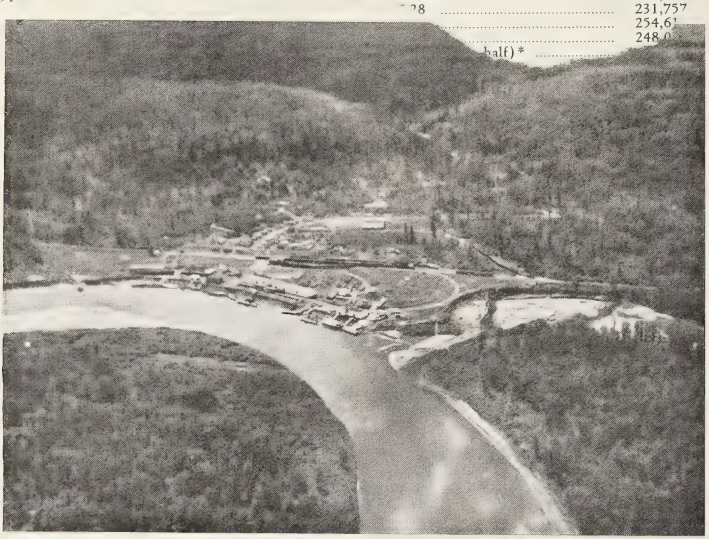


Oil recovered from bituminous sands in vicinity of McMurray en route to northern mining areas

CROWN ROYALTIES COLLECTED ON COAL

Fiscal Year	Royalty Paid	Fiscal Year	Royalty Paid
1907-08	$ 7,621.67	1920-21	$ 190,545.80
1908-09	5,322.39	1921-22	185,436.88
1909-10	153,559.98	1922-23	171,723.83
1910-11	218,932.88	1923-24	210,389.53
1911-12	104,894.55	1924-25	148,979.10
1912-13	[illegible]	1925-26	188,277.9[illegible]
1913 [illegible]	[illegible]	[illegible]26-27	218,150
[illegible]	[illegible]	[illegible]28	231,757
[illegible]	[illegible]	[illegible]	254,6[illegible]
[illegible]	[illegible]	[illegible]	248,0[illegible]
[illegible]	[illegible]	[illegible]half)*	[illegible]

*e issued in 1937 covering 6,[illegible]



Waterways, Alberta, from air, showing salt plant, town, Clearwater River and Hangingstone River (small)
Photo by Dr. J. A. Allan

Miscellaneous Leases

Two leases are in force for removal of sodium sulphate (glauber salts) occurring in comparatively pure condition in certain sloughs and shallow lakes. The leases contain an area of 32.56 acres and production of seven tons was reported for the year.

Special Permits

The annual permit for the collection of bitumen issuing from a well in the Peace River District was again renewed and a new permit was issued on another well in the area. Production of 1,283 gallons was reported during the year.

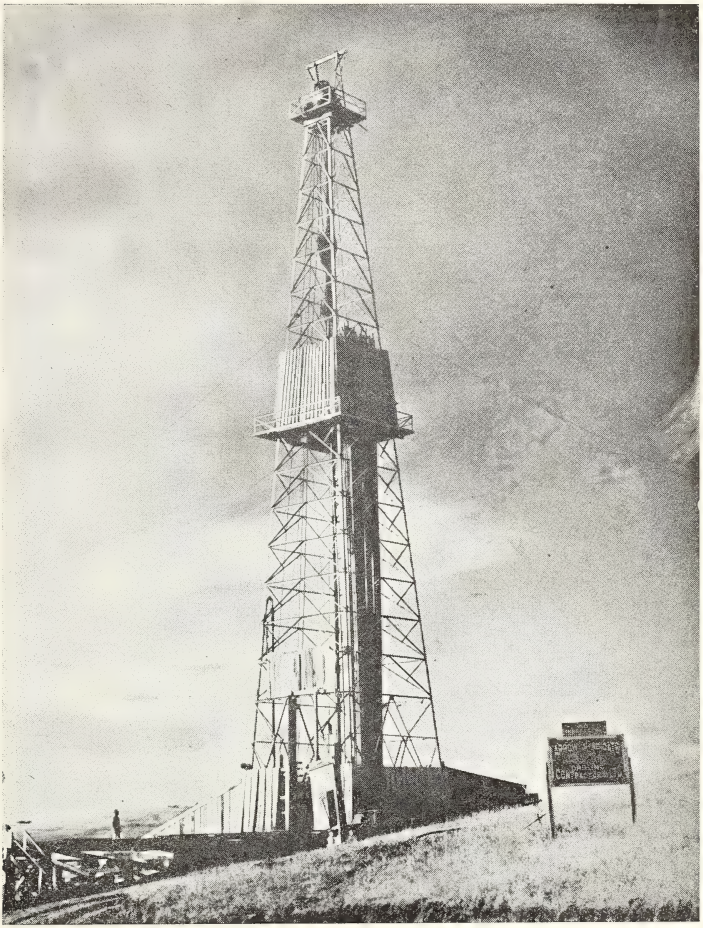
PETROLEUM AND NATURAL GAS

Drilling activity and statistical data

(Development in 1940-41)

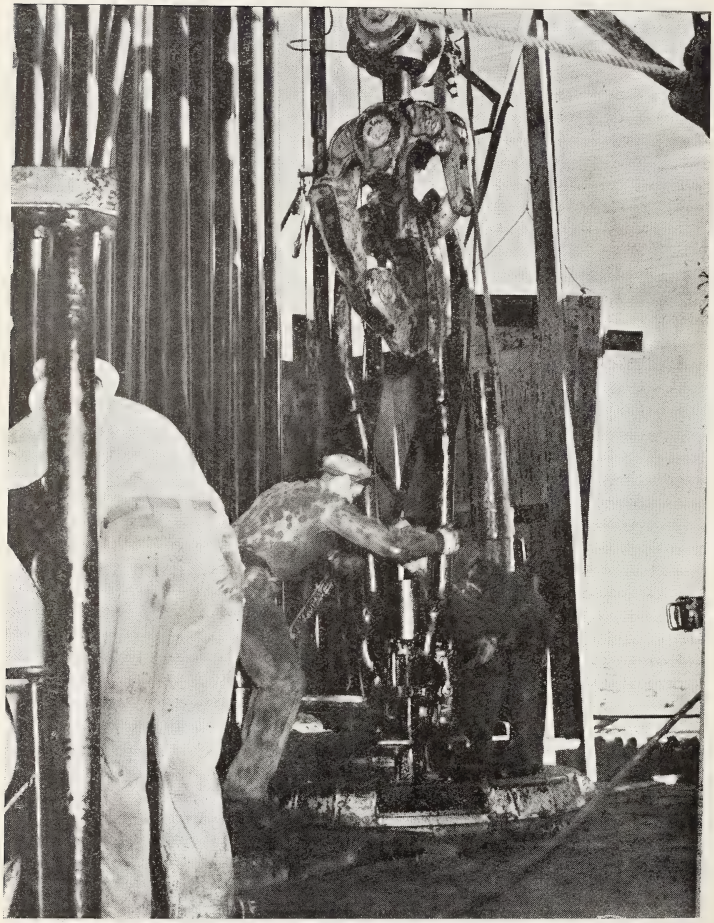
The fiscal year 1940-41 contributed another record in petroleum production with a total of 9,170,931 barrels, an increase of 1,131,652 barrels over the previous fiscal year.

The following review of drilling activity and statistical data covering this period is presented.



Arrow, No. 2 well, pioneer producer of central Turner Valley's west flank

Photo by Don Coltman



Running tools

Photo by Don Coltman

TURNER VALLEY COMPLETIONS DURING THE YEAR

Arranged by date of reaching final depth

Well	Location	Depth	Date Started	Drilling Finished
East Crest 5	* 9 of 6, 19-2	7762′	Sept. 28, 1939	Apr. 1, 1940
Calmont N.W. 1.	3 of 18, 19-2	7609′	Dec. 9, 1939	Apr. 23, 1940
Royalite 48	10 of 7, 19-2	7533′	Jan. 1, 1940	Apr. 29, 1940
N.W.H.B. 3	15 of 8, 18-2	8120′	Dec. 11, 1939	May 3, 1940
Davies 5	10 of 18, 19-2	7391′	Mar. 6, 1939	May 5, 1940
Royalite 50	7 of 17, 18-2	7790′	Jan. 8, 1940	May 12, 1940
Anglo-Phillips 1	14 of 15, 20-3	9058/8780′	Sept. 28, 1939	May 16, 1940
York 3	3 of 20, 18-2	8024′	Nov. 10, 1939	May 16, 1940
Royal Canadian 4	12 of 32, 18-2	8089′	June 13, 1938	May 17, 1940
Kamalta 1	1 of 6, 19-2	8128′	Nov. 6, 1939	Aug. 19, 1940
Foothills 6	5 of 27, 20-3	8140′	Dec. 18, 1939	June 6, 1940
Royalite 51	13 of 5, 19-2	7413′	Feb. 15, 1940	June 17, 1940
Alta. Oil I. 1	4 of 34, 20-3	6974′	Oct. 7, 1939	June 24, 1940
Commoil 3	13 of 29, 18-2	8611′	Jan. 13, 1940	July 9, 1940
Southwest 4	4 of 8, 19-2	7225′	May 6, 1940	Aug. 23, 1940
Pacific 5	6 of 7, 19-2	8094′	Jan. 8, 1940	Aug. 31, 1940
Okalta 9	13 of 18, 19-2	7971′	Mar. 4, 1940	Sept. 23, 1940
Royalite 52	12 of 5, 19-2	7609′	May 19, 1940	Sept. 24, 1940
Alta. Oil I. 2	4 of 4, 21-3	8809′	Dec. 13, 1939	Oct. 9, 1940
N.W.H.B. 4	14 of 8, 18-2	8387′	May 10, 1940	Oct. 19, 1940
Arrow 2	15 of 13, 19-3	8353′	May 19, 1940	Oct. 22, 1940
Twin Valley 1	9 of 13, 19-3	8184′	May 17, 1940	Oct. 28, 1940
Calmont N.W. 2	5 of 18, 19-2	7956′	June 8, 1940	Oct. 31, 1940
Foothills 5	13 of 27, 20-3	7775′	June 24, 1940	Nov. 7, 1940
Allied 1	16 of 6, 19-2	7625′	May 27, 1940	Nov. 10, 1940
Home-Millarville 5	16 of 28, 20-3	8066′	May 8, 1940	Nov. 11, 1940
Pacific 4	3 of 32, 18-2	8019′	Dec. 5, 1939	Nov. 30, 1940
Foothills 7	4 of 27, 20-3	8588′	June 17, 1940	Dec. 8, 1940
Home-Millarville 1	8 of 33, 20-3	8010′	May 10, 1940	Dec. 20, 1940
Commoil 4	9 of 29, 18-2	7308′	July 27, 1940	Dec. 25, 1940
Royalite 54	1 of 7, 19-2	7367′	Aug. 29, 1940	Jan. 3, 1941
Home-Millarville 6	8 of 28, 20-3	8446′	July 6, 1940	Jan. 8, 1941
Royalite 53	4 of 19, 19-2	7678′	Oct. 2, 1940	Jan. 19, 1941
Anglo-Phillips 2	9 of 35, 19-3	7749′	Sept. 27, 1940	Mar. 19, 1941
Okalta 10	12 of 18, 19-2	7970′	Oct. 29, 1940	Mar. 22, 1941
Independent 1	7 of 24, 19-3	8225′	July 29, 1940	Mar. 26, 1941

As on March 31, 1941, completions in Turner Valley stood as follows:—

Gas wells completed	116
Gas wells abandoned	15
Gas wells transferred to oil well list	4
Gas wells capable of producing	97
Oil well completions (includes 4 wells formerly classed as gas wells)	144
Deduct as not yet on production	2
Deduct as not commercial	2
Producing in March, 1941	140

*Note:—Legal sub-division 9 of section 6, township 19, range 2, west of the 5th meridian.

Drilling Activity Outside Turner Valley

Princess Field (*Formerly Called Steveville*).—Anglo Canadian 2—in 4 of 14, 20-11 W. 4—was deepened to 4,243′, obtaining some further geological information.

Anglo Canadian 3—in 5 of 18, 20-11 W.4—was preparing to drill at the end of the fiscal year.

Standard Oil of British Columbia 1—in 13 of 22, 20-12 W. 4—plugged back to 3,195′, after drilling to 6,155′, and testing various horizons. It was completed as a gas well.

Standard Oil of British Columbia 2—in 3 of 13, 20-12 W. 4—was drilled to 4,250′ and plugged back to 3,325′. Favourable indications of oil were obtained and tests were continuing.

Standard Oil of British Columbia 3—in 5 of 13, 20-12 W. 4—was drilled to 3,260′. Oil and gas were encountered, together with some water. Testing and cementing operations were proceeding at the end of the fiscal year.

Driller and crew, Home No. 6 well, northern Turner Valley

Photo by Don Coltman

Standard Oil of British Columbia 4—in 13 of 12, 20-12 W. 4—started to drill shortly before the end of the period, reaching a depth of 1,636′ at the end of March.

Standard Oil of British Columbia Tide Lake 1—in 9 of 19, 18,9 W. 4—drilled to 4,250′. Some showings of oil and gas were reported, but tests showed that there was no commercial production, and the well was abandoned.

Vermilion Field.—Acme Oil and Gas Co. 1—in 5 of 20, 50-5 W. 4—was drilled to 1,827′. Some gas was obtained, though not in commercial quantity, and water also showed.

Acme Oil and Gas Co. 2—in 6 of 20, 50-5 W. 4—was drilled to 1,827′, and obtained indications of oil, but tubing was dropped before obtaining oil production, and operations were suspended.

Alberta Southern Oils Ltd. 1—in 15 of 20, 50-5 W. 4—started drilling late in March, 1941, and suspended operations at 1,000′, shortly after the end of March.

Franco Battleview 3—in 13 of 20, 48-5 W. 4—was drilled to 1,767′. A little oil was probably produced, though not officially reported, and water was then produced.

Franco Dalton 1—in 25, 50-6, W. 4, was drilled to 2,306′. Further testing is proposed, but no oil production has as yet been obtained.

Franco Hamers 1—in 16 of 19, 50-5 W. 4—was drilled to 1,840′, with showings of oil, but testing was not finished at the close of the fiscal year.

Franco Hamers 2—in 9 of 19, 50-5 W. 4—drilled to 1,850′, with showings of oil, was not completed at the close of the fiscal year.

Richardson, Geo. A., 1—in 14 of 20, 50-5 W. 4—was drilled to 1,826′. Oil was encountered, but production had not started at the close of the period.

Richardson Max 1—in 11 of 20, 50-5 W. 4—was drilled to 2,150′. Tests may have been inconclusive, but no oil was obtained from the tests carried out.

Vermilata Frankview 1—in 16 of 28, 50-5 W. 4—was drilled to 2,162′. Small shows of gas and oil were obtained, but the well was abandoned on failing to obtain commercial production.

Vermilata Frankview 2—in 4 of 29, 50-5 W. 4—completed at 1,843′ as an oil well. Oil flowed for a time, and was later pumped.

Western Battleview 1—in 1 of 30, 50-5 W. 4—completed at 1,859′ as an oil well.

Wainwright Field.—Montreal Alberta 1—in 2 of 15, 45-7 W. 4—in a test of the palaeozoic, drilled about 100′ during the year and bottomed at 4,647′ at the close of the period.

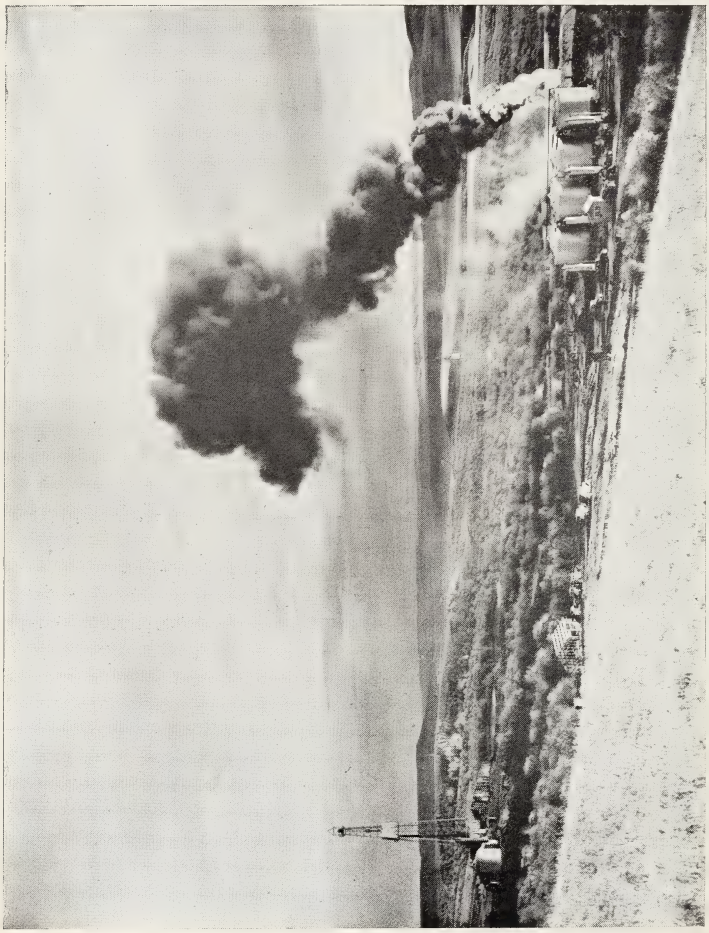
Aldersyde Area.—Ranchmen 1—in 16 of 13, 20-29 W. 4—carried out some fishing operations, but did not succeed in clearing the hole to its former depth of 7,238′.

Bragg Creek.—Dome 1—in 4 of 16, 22-6 W. 5—drilled to about 72′ and later abandoned the hole due to mechanical difficulties.

Inland Sarcee 1—in 2 of 4, 23-4 W. 5—(Sarcee Indian Reserve)—drilled to a depth of 1,285′ and suspended.

McColl-Frontenac 1—in 9 of 6, 23-6 W. 5—drilled to 5,200′ and abandoned the hole on finding no commercial production.

Brazeau.—Home 1—in about 16 of 7, 43-17 W. 5—drilled to 8,728′, tested various horizons, and abandoned on finding no commercial production.



Twin Valley, No. 1 well, a central Turner Valley producer

Photo by Don Coltman

Ram River 2—in unsurveyed territory—about 8 of 2, 37-11 W. 5—drilled to 3,000′ and suspended operations.

Highwood.—Alberta Pacific Consolidated Sheppard Creek 1—in 6 of 7, 16-2 W. 5—was drilled to 6,000 feet and abandoned.

Lethbridge.—Lethbridge Petroleum and Refineries 1—in 12 of 11, 8-22 W. 4—resumed operations, and at the end of the period was at a depth of 3,282′

Lloydminster.—Lloyd Gates 1—in 9 of 26, 49-1 W. 4—drilled to 2,085′ and abandoned.

Lundbreck.—Maxmont 1—in 10 of 20, 9-2 W. 5—continued operations and reached 8,530′ at the end of the fiscal year.

Medicine Hat.—Servicing operations were the only activities in this field.

Pouce Coupe.—Guardian 1—in 7 of 7, 80-12 W. 6—was drilled to 6,641′ before winter caused temporary suspension.

Spring Coulee.—Buckley Oils 1—in 4 of 23, 1-20 W. 4—drilled to 3,834′ and suspended operations.

Cord 1—in 16 of 35, 3-23 W. 4—drilled to 6,017 feet, tested, and suspended. (Operations 1939-40.)

Lyons McIntyre 1—in 14 of 19, 3-21 W. 4—reached a depth of 5,148′ and abandoned.

Northwest West 1—in Blood Indian Reserve—about 3 of 20, 5-23 W. 4—drilled to 8,082′, reaching that depth shortly after the close of the fiscal year, and abandoned after testing.

Sundre.—Clear Oils 1—in unsurveyed territory—about 8 of 2, 35-10 W. 5—drilled to 1,398′, with operations still in progress.

Waterton-Pincher Creek.—Alliance 1—in 14 of 11, 6-2 W. 5—drilled to 6,723′ and suspended operations.

Willow Creek.—Oilfield Development 1—in 7 of 7, 13-2 W. 5—drilled to 1,710′, and suspended for the winter.

Drilling Progress

Drilling for oil and gas can be divided into two categories: development or exploitation of proven areas, and exploration aimed at discovery. A sharp line between these two categories is difficult to draw, for the reason that a discovery of oil or gas does not necessarily prove a field, and in an apparently proven field there will be some failures. For the first time in these annual reports an attempt is made to distinguish development footage outside Turner Valley from exploration footage.

During the fiscal year, the following footage was drilled:

DEVELOPMENT

	Turner Valley	Other Oil and Gas Fields	Exploration	Total
April-June	59,099	3,712	12,324	75,135
July-September	75,947	5,885	10,110	91,942
October-December	83,321	14,011	19,902	117,234
January-March	99,846	2,510	11,893	114,249
TOTALS	318,213	26,118	54,229	398,560

Samples taken every 10 feet in drilling

Photo by Don Coltman

OIL PRODUCTION IN ALBERTA

Fiscal year, 1940-41

	No. of Wells	Barrels	Value of Sales
Turner Valley, oil wells, separators	140	8,780,045	$10,820,281
Turner Valley, gas wells, separators	58*	60,683	92,708
Turner Valley, natural gasoline, plants	...	274,815	527,052
Turner Valley, shallow crude	3	7,186	9,548
Turner Valley Total	201	9,122,729	$11,449,589
Red Coulee	7	12,015	8,975
Wainwright	4	7,973	5,815
Vermilion	3	15,356)	
Miscellaneous	7	12,858)	13,253
TOTAL	222	9,170,931	$11,477,632

*Not including wells which were known to produce only gas.

GAS WITHDRAWALS FROM TURNER VALLEY IN Mcf.

	During Year	To End March, 1941
Gas Cap	19,322,000	1,047,032,000
Oil Zone	31,813,000	89,044,000
TOTAL	51,135,000	1,136,076,000
Gas Wasted	31,939,000	930,325,000

PRESSURES IN GAS FIELDS, 1940

Turner Valley—875 to 393 (No average attempted).
Viking—504 (A decline of 14 pounds from 1939).
Medicine Hat, Redcliff—406 (Based on partial information).

PRODUCTION AND DISTRIBUTION OF ALBERTA CRUDE PETROLEUM

Calendar Year 1940

(Quantities in Barrels)

Production—	
Light crude (24° or over)	8,196,297
Heavy crude (under 24°)	24,738
Natural gasoline	274,172
Total Production	8,495,207
Distribution—	
Alberta refinery runs	4,621,879
Exports from Alberta	3,883,065
Losses and adjustments	28,552
Total Distribution	8,533,496
Withdrawals from Storage	38,289
Total Production	8,495,207
Storage beginning	494,080
Storage end	455,791

OIL USED IN ALBERTA IN 1940

(Quantities in Barrels)

Supply: Refinery runs—	
Alberta crude oil	4,621,879
Imported oil	10,140
	4,632,019
Less refining and other losses, production of non-taxable products, exempt sales, fluctuation in unfinished stocks	1,349,281
Refinery production of taxable petroleum products	3,282,738
Imports of taxable petroleum products from U.S.A. and other provinces	210,301
Total supply of taxable petroleum products	3,493,039
Distribution—	
Sales in Alberta	2,676,683
Shipments to other provinces	991,206
Total Distribution	3,667,889
Deduct withdrawals from storage	174,850
Total New Supply	3,493,039
Storage, white products, beginning	835,755
Storage, white products, end	660,905

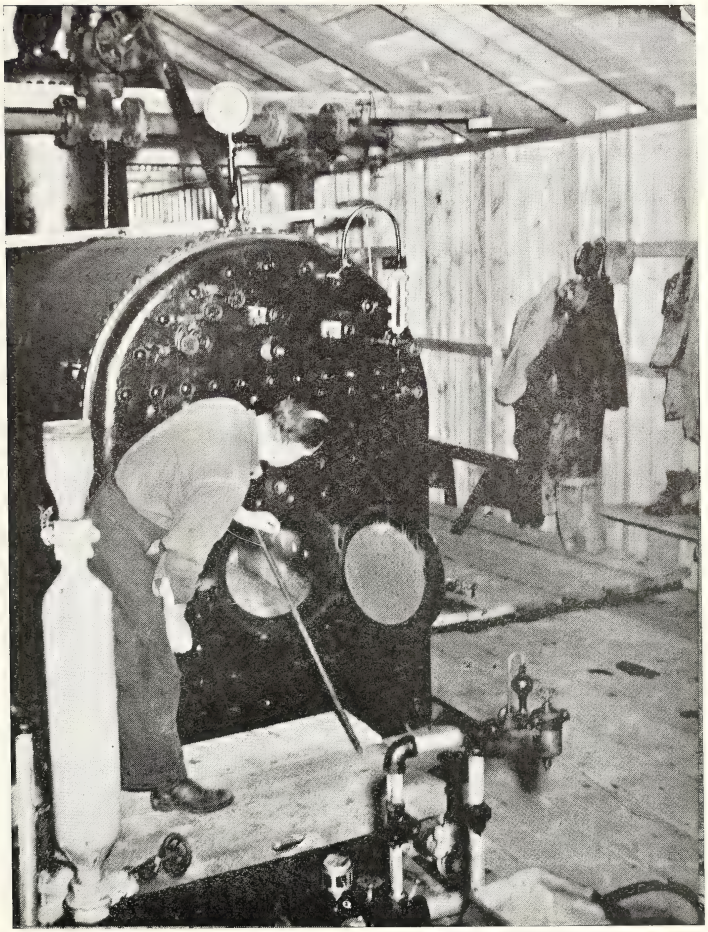
These tables of production and distribution of crude petroleum and oil used in the province are prepared from data that are more nearly complete than similar tables previously published.

GAS CONSUMPTION IN ALBERTA, 1940-41

	No. of Wells		Thousands of Cubic Feet
Calgary-Lethbridge System—			
From Foremost—to Gas Company	3		16,752
From Turner Valley	97		
Gas Company		7,100,504	
Imperial Refinery		964,241	
Bow Island Town		39,197	
Field fuel		11,092,799	
			19,196,741
Wainwright—			
Town Supply	2	101,567	
Field fuel	3	9,050	
			110,617
Brooks	6		55,778
Edmonton and towns—			
From Viking	21	3,954,048	
From Kinsella	1	339,439	
			4,292,487
Medicine Hat	34		2,384,140
Redcliff	11		642,313
Red Coulee—field use including export	1		12,802
Miscellaneous	9		32,641
TOTAL	188*		26,744,271
Waste, Turner Valley			31,938,761
Waste, other (partial record)			163,000
TOTAL natural gas production			58,846,032

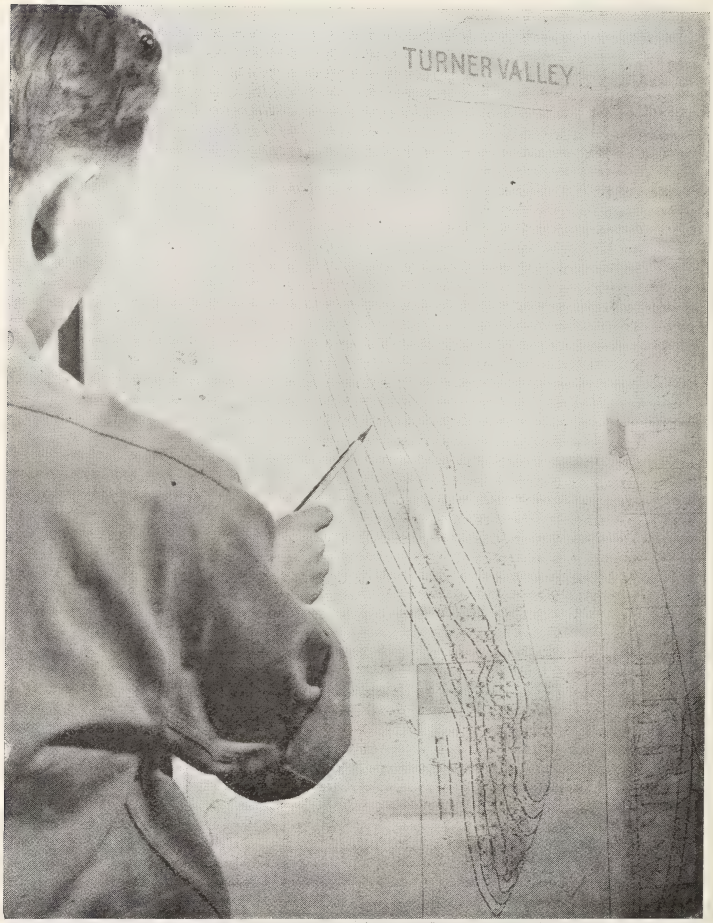
*Includes only wells believed to be in use during the year.

There are additional wells of value as standby to distribution systems, and a number of wells each serving a single consumer. Some other wells doubtless might be used when connected to a distribution system, but in absence of such connection, their condition and state of reserves are so little known as to make definite statements undesirable.



Fireman at drilling well

Photo by Don Coltman



Map of Turner Valley

Photo by Don Coltman

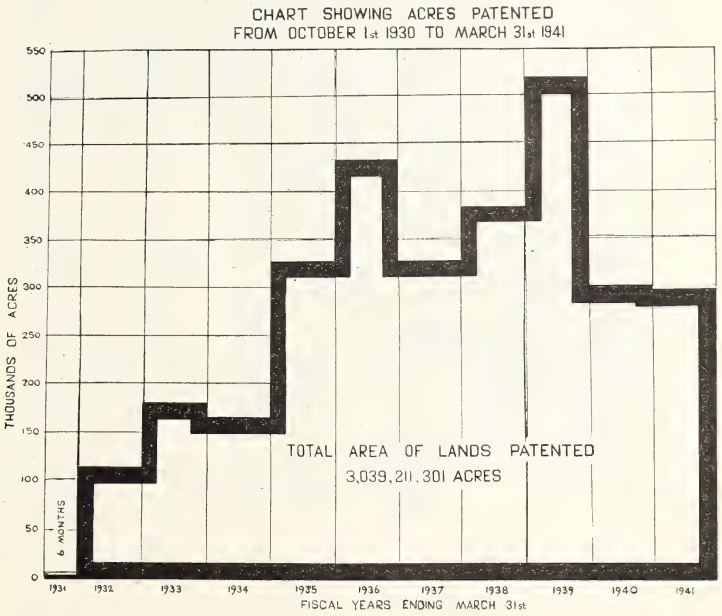
Technical Division

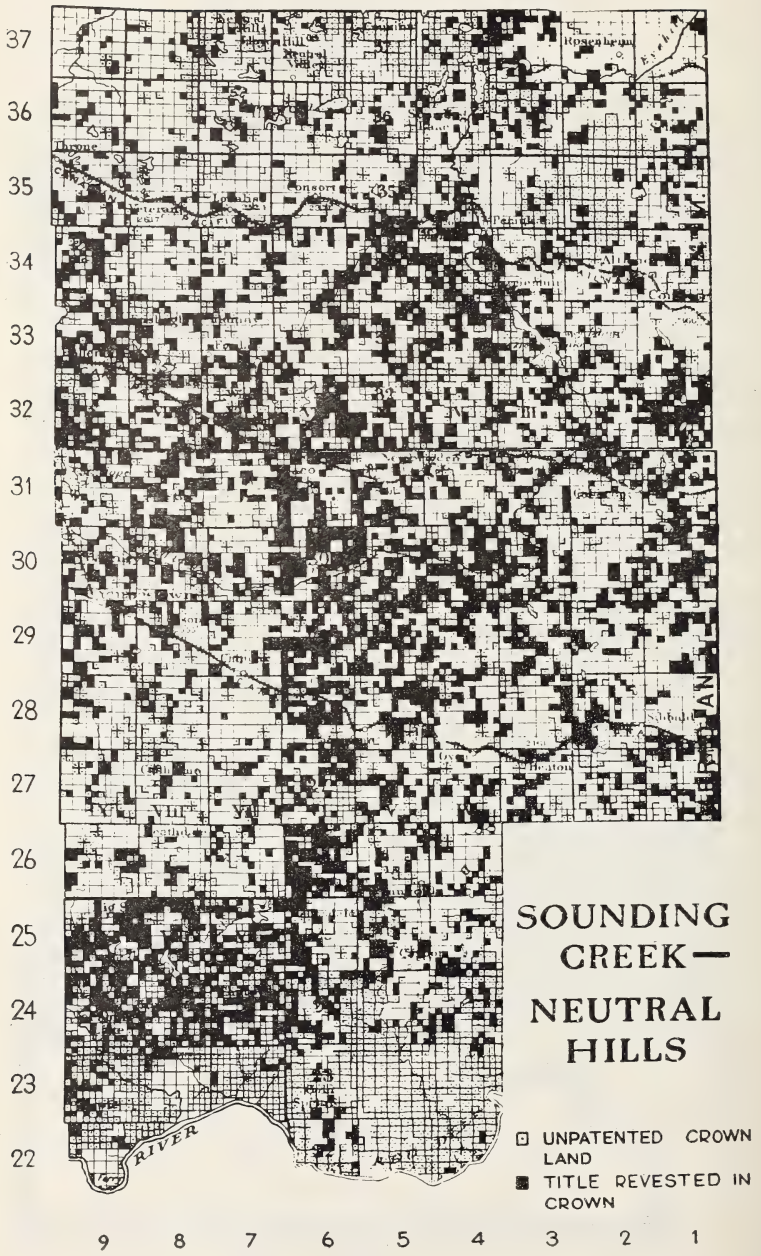
REPORT OF THE SUPERINTENDENT OF THE TECHNICAL DIVISION, T. W. DALKIN

Notifications (*Land Patents*).—A glance at the chart included in this report will reveal that the area patented during the fiscal year ending March 31st, 1941 almost equals the area patented in the previous fiscal year. The total area patented during the year under review is 295,649.119 acres, and in addition 60 parcels in subdivisions were disposed of, particulars of which are as follows:

Classification	Notifications	Area (Acres)
Homesteads	1,380	208,562.245
Second homesteads	382	57,748.33
Soldier grants	47	7,401.80
School lands' sales	92	12,370.941
Sales (including lots in subdivisions)	99	4,642.668
Special grants	37	543.305
School lands' grants	6	23.74
Purchased homesteads	2	319.00
Exchange of lands	3	2,788.35
Release of habendum clauses	4	86.91
Calgary and Edmonton Railway Company's land subsidy grants—		
Surface	2	669.80
Minerals	1	483.00
Canadian National Railways' sale (Special Areas)	1	1.61
Canadian Pacific Railway's sale (Special Areas)	1	6.27
Northern Alberta Railways Company's sale	1	1.15
TOTALS	2,058	295,649.119

Actually 2,056 notifications were issued. The difference of two notifications in the total is due to the fact that one was issued combining a homestead and sale, and the other covering a school lands' grant and school lands' sale.

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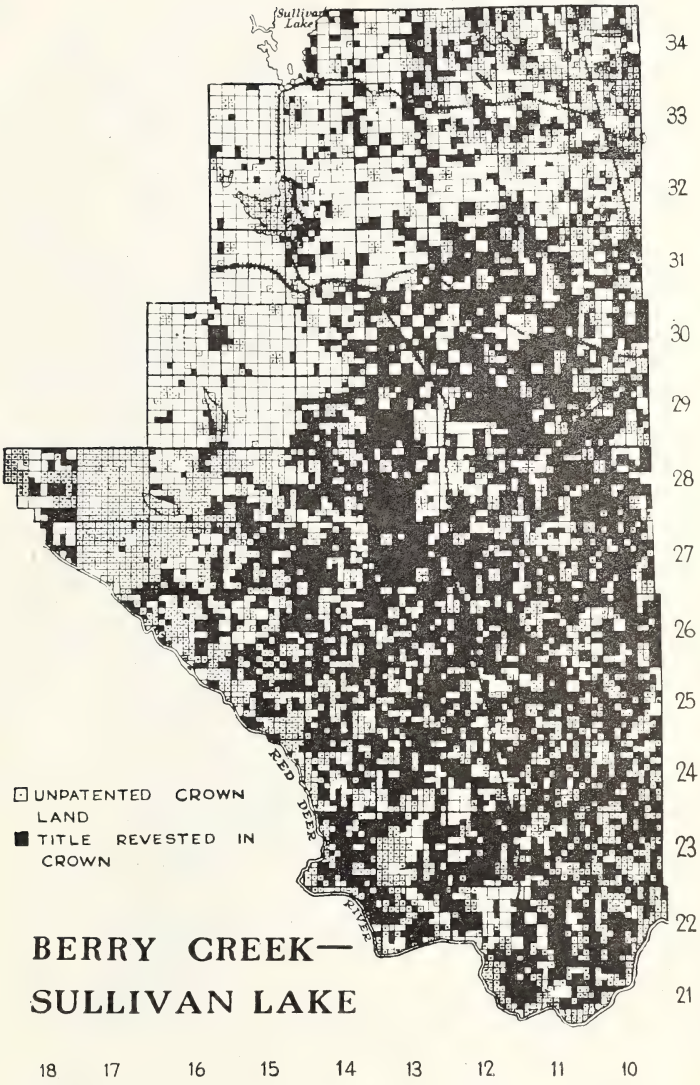
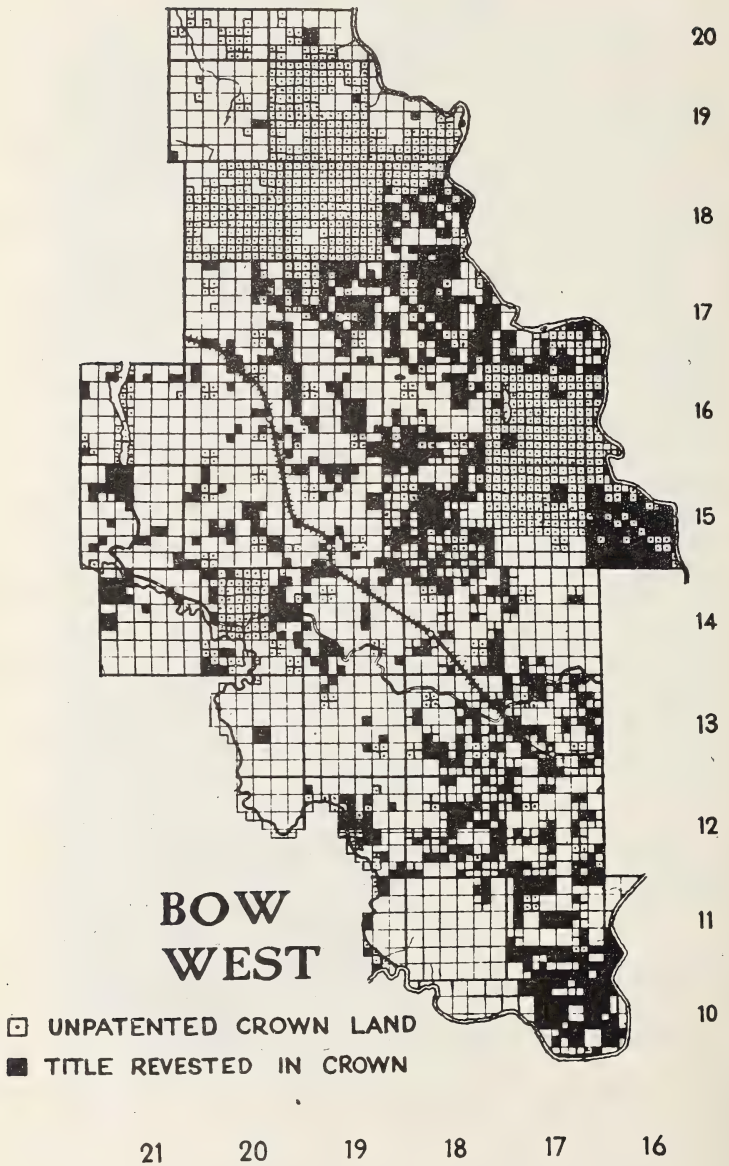
6
5
4
3
2
1
SOUNDING CREEK—
NEUTRAL HILLS
UNPATENTED CROWN LAND
TITLE REVESTED IN CROWN
RIVER


Sullivan Lake
34
33
32
31
30
29
28
27
26
25
24
23
22
21
RED DEER RIVER
UNPATENTED CROWN LAND
TITLE REVESTED IN CROWN
BERRY CREEK—
SULLIVAN LAKE
18
17
16
15
14
13
12
11
10


20
19
18
17
16
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14
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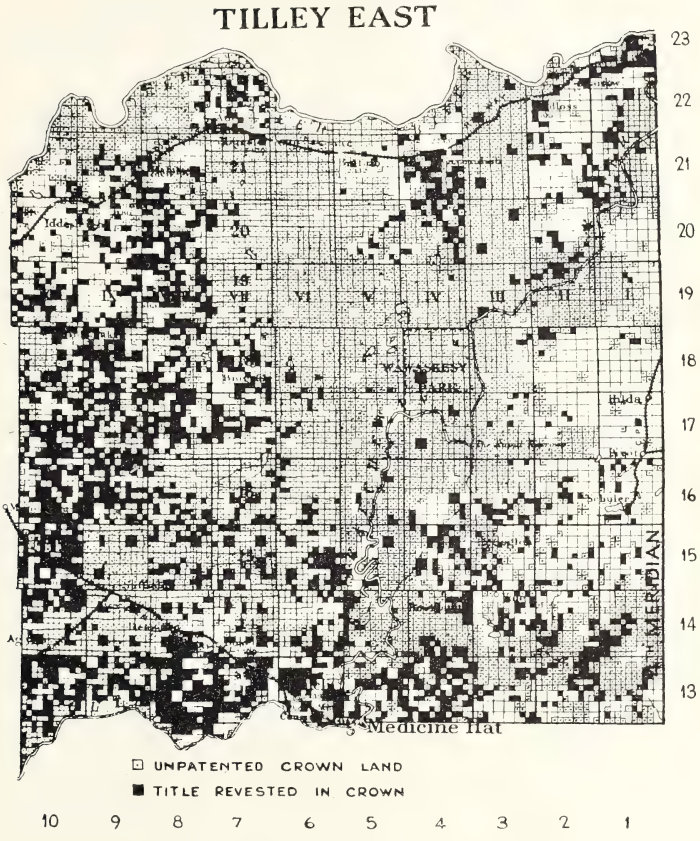
BOW
WEST
UNPATENTED CROWN LAND
TITLE REVESTED IN CROWN
21
20
19
18
17
16



Details of sales in subdivisions which are included in the 99 notifications referred to above:

	Notifications	Parcels No. of Lots	Parcels No. of Blocks
Whitla, Plan 191 AG	1	1	....
Coleman, Plan 6808 CU	8	11	....
Maple Leaf, Plan 6224 Y	1	2	....
Canmore, Plan 1095 F	6	6	....
Maple Leaf, Plan 6632 Y	3	6	....
Maple Leaf, Plan 7242 AI	5	11	....
St. Albert Settlement	1	1	....
High River, Plan 5830 W	1	....	1
Townsite of Lac La Biche, P. 4313 BF	1	1	....
Jarvie	5	5	....
Carbondale, Plan 232 AI	1	1	....
Morningside, Plan XVIII	1	1	....
Patricia Townsite, Plan 1217 BA	2	3	....
Bellevue, Plan 7134 AI	1	1	....
Donnelly, Plan 204 CL	2	2	....
Hemaruka, Plan 4934 DO	1	1	....
	40	53	1

School lands' sales included in the 92 notifications referred to above:

	Notifications	Parcels No. of Lots	Parcels No. of Blocks
McLennan Townsite, Plan 1394 EU	1	1	....
Special grants included in the 37 notifications referred to above:			
Lake View, Plan 2026 AJ	1	1	....
New Saratoga, Plan 1314 P	1	4	....
		59	1
TOTALS	43	60	

Special Areas.—In the opening paragraph of this report reference is made to the 295,649.119 acres of Crown lands which were patented. It is important also to relate that hundreds of parcels of lands in the Special Areas comprising 219,018 acres, were revested in the Crown due to non-payment of taxes. In the previous fiscal year the Crown acquired through this procedure an area amounting to 321,000 acres, so that it will be readily seen that well over half a million acres of land have returned to the Crown during the last two years, whereas, during the same period a slightly greater area, namely 597,080 acres, more or less, of Crown lands passed into private ownership by the issue of notifications.

It should be pointed out that practically all the lands which had been acquired by the Crown through non-payment of taxes were made up of farms abandoned by settlers due to continuous crop failures. The process of acquiring these abandoned farmsteads is continuing, and, at the present rate, the time is not far distant when the majority of the lands will have reverted to the Crown. Included in this report is a map of each Special Area showing the tax recovery lands to which the Crown has now acquired title, and also the unpatented Crown lands.

There are still cases where the pioneer settlers are not daunted by crop failures and in spite of years of hard toil there is still evidence of a strong determination to win through and stay with the land that has for so many years been home. The Department is conscious of such cases and where Crown lands are avail the residents can obtain a lease in order to supplement their own holdings.

Some of the residents still retain title to their lands, and where such lands are scattered a policy has been instituted by the Department whereby these scattered holdings may be exchanged for Crown lands in one block, thus consolidating the holdings in order to permit of more economical farming of the unit.

Water, of course, is a problem in these areas, and exchanges are permissible in order that the resident may have access to a water supply. At other times, exchanges are allowed so that children will be located closer to a school.

Many maps, charts and statistics have been compiled by this Division showing in graphic form the problems, which include education, hospitalization, road construction, etc., confronting the administrators and the scattered settlers. From time to time the records of the Special Areas have passed through various offices, adding more or less to the confusion, and the Technical Division still continues to spend a great deal of time setting up new records and plans and elucidating old records. A complete check of the assessment records was found essential and many errors were discovered.

Some were owing to the fact that lands appearing by title in the name of the Crown were really privately owned, due to the owners holding unregistered transfers which were issued many years previous to the transfer of the Special Areas to this Department. These transfers should have been registered in the Land Titles Office but either the owners forgot to do so or were influenced by the Land Titles Office registration charge and postponed completion of the

transfer. The practice of sending out transfers to the owners has been definitely discontinued and transfer of ownership from the Crown is affected by notification, which is sent direct to the Land Titles Office and registered in the new owner's name.

Agreements for Sale.—The cancellation of old agreements for sale referred to in last year's report is being continued. Agreements were executed many years ago by the now defunct municipalities or the Department of Municipal Affairs. In many cases the purchasers have left the land and in many other cases the obligations of the contracts seem to have been completely forgotten.

Exchange of Lands.—Some years ago and previous to the transfer of the Special Areas to this Department, the administrators arranged with the Credit Foncier Franco-Canadien to exchange some scattered quarter sections of this company's land for a block of Crown lands of equal value, comprising 1,764 acres, more or less. The Credit Foncier lands were transferred to the Department of Lands and Mines in November, 1938, and on the 1st of October, 1940, Order in Council, No. 1340/40 was passed authorizing the transfer of the block of Crown lands to the company.

Old R.N.W.M.P. Reservation, Pincher Creek.—Under the provisions of the agreement between the governments of the Dominion of Canada and the Province of Alberta respecting the Natural Resources—P.C. No. 3,880, dated at Ottawa, 13th of August, 1940—this reserve and the buildings were transferred to the province. Whilst the buildings are dilapidated and in a state of disrepair, the land itself is a desirable piece of property, located in the east end of the town of Pincher Creek. It is bounded on the north by the creek and on the west end of this block of land is located the provincial Forestry building. The area of this parcel is 8.60 acres, more or less.

Soldier Settlement Board Lands.—Only three parcels of land were transferred to the province, particulars of which are as follows: That portion of the south-west quarter of section 3, township 64, range 1, west of the fifth meridian, lying north of the river, by P.C., No. 1,476, dated the 3rd of March, 1941; the south-west quarter of section 1, township 43, range 9, west of the fourth meridian, by P.C., No. 2,052, dated the 21st of May, 1940; the south-west quarter of section 34, township 27, range 14, west of the fourth meridian, by P.C., No. 2,070, dated the 21st of May, 1940.

Roadways.—There was a decrease this year in the number of quarter sections of Crown lands affected by the surveyed roadways, surveys of which were executed by the Department of Public Works and by private surveyors employed by the various municipal districts. A total of 81 plans was filed in this Division affecting 262 parcels of land.

New Surveys.—A complaint was laid in connection with the operation of a refreshment booth located on 12th Street East in Calgary at the south approach of the St. George's Island bridge. As this location was close to the original bank of the Bow River, it was necessary to have a survey made in order to ascertain the ownership of the land upon which the booth was erected. The survey revealed that an area of land had been permanently given up by the change of the course of the Bow River. This land was occupied by transients and it was felt that the City of Calgary was in a better position to deal with these transients within its city limits and accordingly arrangements were made to transfer the land to the City of Calgary in return for which the city undertook to defray the cost of the survey. At the time of the survey it was discovered that portion of this accrued area fell within the limits of the right of way of the Canadian National Railways and the attention of the railway company will be

called to this fact in order that a notification may issue in the name of this company and thus complete the title to the balance of the railway right of way.

Due to the construction of various buildings—cottages, etc.—the building of which had been permitted on land granted by lease for recreational purposes to the towns of Coleman and Blairmore, it was found expedient to effect the cancellation of this lease. A survey was made which showed that quite a community was established along the southerly and westerly shores of Crowsnest Lake in section 9, township 8, range 5, west of the fifth meridian. Land was staked out surrounding each building or group of buildings, and it is the intention of the Department to dispose of these areas by lease for which an annual rental will be charged. The residential rentals will, of course, be more reasonable than the rentals for locations upon which commercial operations are being conducted.

On the south-east quarter of section 29, township 61, range 10, west of the fourth meridian the danger of a squatter situation appeared to be developing. A survey dividing the land into a small subdivision of lots and blocks was made in order that this area may be disposed of in an orderly fashion by lease to the residents. The subdivision is known as St. Lina.

A squatter situation had already developed on Crown lands in the north-east quarter of section 15, township 28, range 19, west of the fourth meridian, north of the Red Deer River, which had been created by miners from the adjoining coal mines. A preliminary survey was staked out and the location of the various buildings ascertained in order that leases may be issued accordingly.

The City of Calgary.—North-west quarter of section 36, township 23, range 1, west of the fifth meridian: Reference was made in last year's report to an application of the British American Oil Company, Limited to the City of Calgary for a pipe-line right of way at this location, at which time it was discovered that there were no Dominion traverse notes along a certain portion of the bank of the river.

The survey has now been completed and the plan filed in this Division under No. 278 Gen. In view of the fact that the City of Calgary transferred to the Crown all that portion of the north-west quarter of section 36, lying north and west of the river, containing 27 acres, more or less, according to the old survey of 1885, and bore the expense of the new survey, a notification was issued on the 2nd of August, 1940, in favour of the City of Calgary, for all that portion of this quarter section lying north and west of the river as defined by a new survey and containing 32 acres, more or less.

Tieland, Townships 66 *and* 67, *Range* 2, *West of the Fifth Meridian.*—Publication of the township plans of this survey have been delayed due to the rush of work entailed by the issue of war maps in the Surveyor-General's office at Ottawa. The plan of survey of the railway right of way through the newly surveyed section of these townships has, however, been approved by the Board of Transport Commissioners and a copy of this survey is now on file in this Division under No. 504. Consideration will now be given to the issue of a free grant in favour of the Northern Alberta Railways Company for the right of way through these newly surveyed lands in accordance with the agreement of sale of the railways by the Provincial Government.

Township 69, *Range* 26, *West of the Fifth Meridian.*—A copy of the plan of survey of this township has been forwarded to Ottawa to be lithographed.

The following new plans of survey, approved by the Director of Surveys, have been lithographed by the Department of Mines and Resources, Ottawa, and released for distribution:

Townships 69 and 70, range 27, west of the 5th meridian
Township 80, range 3, west of the 6th meridian
Township 70, range 6, west of the 6th meridian
Townships 76 and 77, range 18, west of the 5th meridian
Townships 76 and 77, range 19, west of the 5th meridian

New Coal Areas Map of Alberta.—For many years there has been a great need for a new map showing the coal areas of Alberta. Dr. J. A. Allan of the University has realized that the old map needed revision and in co-operation with this Division a new map was drafted, based upon geological formations described by Dr. Allan. Three thousand copies of this map were run off the press defining in colours the different coal areas. The legend shows four coal areas, namely, the Edmonton, Belly River, Belly River (including Edmonton) and Kootenay. There has been a considerable demand for these maps. A supply was forwarded to Mr. E. S. Clarry, Alberta Trade Commissioner at Toronto by the Department of Trade and Industry. The many commendations, received in connection with this map, have well justified its publication. It is drawn to a scale of twenty miles to the inch, and sold at twenty-five cents per copy.

New Map of Alberta.—The publication of an up-to-date map of the province, drawn to a convenient scale, has been in anticipation for some time and it is gratifying to report that considerable progress has been made in this direction. Two draftsmen have been assigned to this work which should be completed early in the forthcoming year. It has been decided that this map will be published on a scale of sixteen miles to the inch, being on the same scale as the map of Saskatchewan which has been issued. This latter map was prepared and printed at the office of the Surveyor-General and Chief, Hydrographic Service, Department of Mines and Resources, Ottawa.

Changes in the Boundaries of Banff National Park.—At the ime of the transfer of the natural resources the boundaries of the national parks for the most part were by metes and bounds and followed the crests of the mountain ranges. It has since been deemed advisable to have these boundaries surveyed and shown on an official map of the Banff National Park.

This survey revealed that some changes were necessary in the boundaries whereby certain lands in the forest reserve would be included in the park, and certain park areas would become provincial forest reserve. Correspondence has been carried on for some time with the Department of Mines and Resources, Ottawa, and at the last Session of the Alberta Legislative Assembly, the Land Titles Act was amended to permit the filing of the official plan showing the newly established boundaries. This plan was duly signed by the Honourable T. A. Crerar on behalf of the Dominion and by the Honourable N. E. Tanner on behalf of the Province, and was filed in the Land Titles Office at Calgary on the 18th of April, 1941, under No. 3845 E.Q., and in the Technical Division under No. 293 Gen.

Addition of Lands to the Crowsnest Forest Reserve.—Portion of sections 16, 17, 20, 21, 22 and 27 in township 11, range 1, west of the fifth meridian, previously taken out of this reserve, were re-established in the reserve by Order in Council, No. 1730/40, dated the 24th day of December, 1940.

Soil Survey.—The Crown lands in the following townships were subject to an examination by the Department's soil surveyors:

Townships 78, 79, 80, 81, 82, 83, 84, 85 and 86 in ranges 20 and 21, west of the 5th meridian;
Townships 78, 79, 80, 81 and that portion of township 82, east of the Smoky River, in range 22, west of the 5th meridian;
Those portions of townships 78, 79, 80 and 81, east of the Smoky River, in range 23, west of the 5th meridian;
That portion of township 78, range 24, west of the 5th meridian, east of the Smoky River;
Townships 83 and 84 in ranges 1, 2 and 3, west of the 6th meridian.

The individual quarters were inspected separately, the soil being analyzed at frequent intervals over the quarter. At the same time, topography, covering, improvements, the cost of clearing and breaking and the value of the land were recorded in a field book. Quarters of which less than eighty acres were suitable for cultivation were classified as not meeting the necessary requirements for settlement.

The work was carried out on foot and on saddle horses, the horses being used to cover the quarter sections farthest from camp. Where the main camp could not be moved within a reasonable distance of the quarters to be worked, a fly camp was transported into the area by pack horses from which two men worked until the area was completed. Individual scattered quarters were inspected by car where possible.

Soil.—The whole of the area inspected lies within the grey-wooded soil belt. Typical wooded soils in Alberta have the following characteristic profile: The upper layer or A_0 horizon consists largely of leaf mould or plant debris and varies in thickness from one to four inches. In some cases this layer may be partially or entirely destroyed by fire. Beneath this layer is another thin layer designated as the A_1. It is a mineral soil, dark brown to drab in colour, varying from one-half to four inches in thickness. This A_1 layer may not be present in the poorer soils. Beneath the A_1 layer is a light coloured badly leached A_2 layer varying in thickness from four to twelve inches. The finer clay particles have been leached out of the A_2 layer and deposited below in the B_1 layer which is darker in colour and heavier in texture. The B_1 layer varies in thickness from one to four feet. This profile varies greatly; the good soils, W_1, have a fairly thick A_1 layer and a shallow A_2 layer, while the poor soils, W_3, have no A_1 layer and a very deep A_2 layer. The W_2 soils are intermediate between these two.

These grey-wooded soils are initially low in fertility and lacking in active organic matter. For this reason, these soils require special attention if satisfactory crops are to be produced on them. The growing of suitable legume crops and use of commercial fertilizer are necessary on the poorer class of soils.

The majority of the soil covered on this survey was of the second and third class wooded type. Very little first class soil was encountered. In many cases, where good soil was found, the area was very inaccessible and would require heavy clearing. In some cases where good soil was found the topography was too rough to permit cultivation.

Considerable muskeg and swamp land areas were encountered but this muskeg at some future time will no doubt be considered good farm land.

It had been hoped that a considerable area of suitable lands would be discovered for community settlement but in this regard the results were disappointing, and general speaking, desirable lands were in scattered locations. The Department is fully conscious that post-war settlement upon the land, which was quite a problem after World War No. 1, should now be given every consideration, and that plans should be laid well in advance in order to be prepared to meet the demand for settlement upon the land after hostilities have ceased.

It may be deemed advisable to approach the Dominion Government and in co-operation inaugurate an extensive survey in order to locate readily suitable lands when the demand arises. It is quite possible that available and suitable lands, which have been lost through non-payment of taxes, may be found in established communities, titles to which lands are held by the various municipalities, Department of Municipal Affairs and Department of Lands and Mines.

A well-organized inspection of these lands may bring gratifying results, but should this not be the case then consideration must be given to the locating and surveying of new lands, bearing in mind their accessibility to transportation by road and rail.

From this year's survey, which includes a number of inspections of quarter sections scattered all over the province, the following information has been obtained. Applications for these lands have been received under Agricultural Lease Regulations.

	Quarter sections
Non arable	1,716
Arable	802
Potentially arable	175
TOTAL	2,693

Those listed above as potentially arable represent either lands which are at present swampy, or lands, the cost of clearing of which, would not at the present time be economical.

Later, when an increased demand for land becomes more noticeable than at present, a considerable percentage of the lands classified as non arable can, with proper supervision, be successfully farmed. The above lands are located in the Peace River, Edmonton and Lethbridge land districts.

This result unmistakably emphasizes the necessity of a real effort being put forward in order that the Department may be in a position to supervise land setlement on a large scale when the time comes.

Land Subsidy Account.—The Calgary and Edmonton Railway Company has now made its final selection in settlement of the Land Subsidy Account.

The mineral rights on 40 acres, comprising portion of section 7, township 8, range 4, west of the fifth meridian, were granted by notification dated the 7th of December, 1940 to this Company. An additional area of 483 acres, covering mineral rights in township 33, range 22, west of the fourth meridian, was also granted to the Company by notification dated the 8th of January, 1941. The Calgary and Edmonton Land Company was entitled to surface rights amounting to 613.73 acres, more or less, and on the 8th of January, 1941 surface rights, located in township 33, range 22, west of the fourth meridian, amounting to 629.80 acres, more or less, were granted. The excess area of 16.07 acres, over and above the area to which the Company was entitled, was sold at the rate of $1.00 per acre.

Leases and Licences of Occupation.—Many applications under this heading were received and disposed of from power, oil, railway and lumber companies as well as from private individuals. These applications covered power transmission line rights of way, pipe-line rights of way, spur tracks, logging roads and reservoir sites. Due to the boom in the lumber industry there has been unusual activity regarding logging roads.

Photostat Machine.—The value of the Department's photostat machine is steadily being recognized throughout the Service and a large volume of work is now being done for all Government departments by this process.

Preservation of Records on Film.—Reference was made in last year's report to the problem of storing the large volume of closed files and a solution of this difficulty has been provided by an amendment to Chapter 75 of the Department of Lands and Mines Act.

This amendment was assented to on March 14th, 1941 and now photographs can be taken of any papers, books, files, documents or plans of record in the Department that relate to transactions that have been concluded for a period of more than one year.

The film of these photographs must be checked and duly certified under the signature of an officer of the Department nominated for such purpose by the Minister, after which such documents, etc., may be destroyed. This amendment further provides that a print from any such photographic film, duly certified

under the signature of said officer, or failing such signature, the signature of any other officer of the Department duly nominated for the purpose, shall in all legal proceedings be received in evidence for all purposes for which the original would have been received. This method of preserving the records of the Department brings about a compression of the matter photographed in such a way as to save 99 per cent of the filing equipment and space formerly required for the originals.

The introduction of this modern method of preserving public documents was first made in Great Britain, coming from the United States, by The British Museum, which uses it for all kinds of valuable and irreplaceable records. The City of Darlington in the County of Durham, one of the iron and steel centres of north-east England, claims to be the first English municipality to have adopted this means of preserving records against air raids. Four films are made of the record and carefully stored in four different places in the city. Since Darlington started this practice, many other municipalities have followed its example.

It should be explained that the method consists of making negatives on strips of 16 millimeter film, 100 feet long, which can be readily thrown upon a screen when required.

Maps and Plans.—There has been a decided increase in the demand for maps and plans, due in no small measure to requirements of the Army and Air Force, with which branches of the Service this Division has, to the best of its ability, co-operated.

Accounting Division

REPORT OF THE ACTING ACCOUNTANT, J. W. PATRICK

Revenue for the year for the various branches of the Department, excluding Special Areas, amounted to $2,031,494.38. This was the highest in the history of the Department and an increase of $87,395.56 over the previous fiscal year. Main increases and decreases were as follows:—

	Increase	Decrease
Grazing permits, fees, rentals, etc.		$ 21,625.14
Timber fees, dues, rentals, etc.	$248,634.48	
Coal fees, rentals, etc.		25,841.07
Coal royalties	31,240.53	
Petroleum and Natural Gas: Fees, rentals, etc.		110,842.90
Miscellaneous		34,170.34
Net revenue increase		87,395.56
	$279,875.01	$279,875.01

Total expenditures from appropriations amounted to $670,278.85 as compared with $708,605.34 for the previous year. There was therefore a surplus of $1,361,215.53 on income account.

Special Areas and Special Districts.—Collections from Special Areas and Special Districts amounted to $633,745.14, an increase of $215,677.08 over the previous fiscal year. Increases and decreases were as follows:—

	Increase	Decrease
Taxes	$136,995.27	
Agricultural advances	57,526.60	
Special Area trust collections	36,419.07	
Miscellaneous		$ 15,263.86
Net increase in collections		215,677.08
	$230,940.94	$230,940.94

All expenditures were made from funds in the Special Areas and Special Districts Trusts Accounts. These expenditures amounted to $329,724.31. A temporary loan of $29,741.36 was made from the Provincial Treasurer to meet requisitions, but this was repaid before the end of the year. No agricultural advances were necessary.

Index to Statements

A.—Statement of Receipts from all Sources
B.—Statement of Receipts Income Account
C.—Statement of Receipts Capital Account
D.—Statement of Receipts, Revenue Transferred to Other Departments
E.—Statement of Receipts and Disposition of Levied School Taxes
F.—Statement of Receipts and Disposition of Hospital Taxes
G.—Statement of Receipts and Disposition of Agricultural Advances
H.—Special Areas Trust Account Statement of Receipts and Payments
I.—Special Districts Trust Account Statement of Receipts and Payments
J.—Statements of Receipts, Special Areas and Special Districts
K.—Statement of Receipts by Branches
L.—Statement of Receipts School Lands Branch
M.—Alberta School Lands Trust Fund Balance Sheet
N.—Statement of Alberta School Lands Sales Revenue Account
O.—Statement of Collections on Tax Recovery Lands

STATEMENT A.

STATEMENT OF RECEIPTS FROM ALL SOURCES

From April 1, 1940 to March 31, 1941

	Gross Receipts	Refunds	Net Revenue
Income Account—Statement B	$2,056,490.38	$ 24,996.00	$2,031,494.38
Capital Account—Statement C	9,601.42	90.03	9,511.39
Transferred to other Departments, Statement D	851.49	.....	851.49
School Lands Trust Fund	77,145.39	556.05	76,589.34
Special Areas and Special Districts, Statement J	643,665.09	9,919.95	633,745.14
Unapplied Receipts carried forward (subject to refund)	87,294.75	49,259.61	38,035.14
Improvements	5,891.38	2,992.17	2,899.21
Land patents cultivation crop shares	1,492.29	.....	1,492.29
School lands cultivation crop shares	33,791.91	.....	33,791.91
Grazing permits, fees, rentals, etc.	25,409.25	.....	25,409.25
	$2,941,633.35	$ 87,813.81	$2,853,819.54

STATEMENT B.

STATEMENT OF RECEIPTS INCOME ACCOUNT

From April 1, 1940 to March 31, 1941

INCOME ACCOUNT:	Gross Receipts	Refunds	Net Revenue
Lands and Grazing Branch:			
Casual	$ 7,613.73	$ 220.95	$ 7,392.78
Grazing permits, fees, rentals, etc.	101,127.91	936.01	100,191.90
Hay permits, fees, dues, etc.	3,607.20	137.25	3,469.95
Agricultural fees, rentals, etc.	1,373.04	260.00	1,113.04
Improvement collection fees	1,148.77	.....	1,148.77
Cancellation fees	2.00	.....	2.00
General sales interest	1,649.64	.....	1,649.64
Cultivation fees, rentals, etc.	9,664.96	865.25	8,799.71
Surface rentals	1,776.56	.....	1,776.56
Timber Branch:			
Casual	5,279.03	2.78	5,276.25
Timber fees, dues, rentals, etc.	609,709.20	2,809.61	606,899.59
Mining Lands Branch:			
Casual	12,829.71	.....	12,829.71
Coal fees, rentals, etc.	86,337.58	891.60	85,445.98
Coal Mines Act sundry revenue	5,221.50	18.00	5,203.50
Coal royalties	200,045.68	.....	200,045.68
Petroleum and Natural Gas:			
Fees, rentals, etc.	230,532.03	687.25	229,844.78
Royalties	411,963.65	.....	411,963.65
School Lands Branch:			
Interest on sales	70,706.67	300.00	70,406.67
Miscellaneous	285,087.71	17,716.57	267,371.14
Miscellaneous:			
Casual	6,857.54	84.86	6,772.68
Services and supplies	2,599.04	5.87	2,593.17
Reimbursement of salaries and expenses	491.23	.....	491.23
Tax recovery office fees	866.00	60.00	806.00
Total carried to Statement A	$2,056,490.38	$ 24,996.00	$2,031,494.38
Special Districts (carried to Statement G):			
1936 Seed grain interest	431.95	.....	431.95
1939 Agricultural advances interest	331.14	.60	330.54
1937-38 Feed and fodder interest	674.25	.....	674.25
1938-39 Feed and fodder interest	362.83	.....	362.83
TOTAL INCOME ACCOUNT	$2,058,290.55	$ 24,996.60	$2,033,293.95

STATEMENT C.

STATEMENT OF RECEIPTS CAPITAL ACCOUNT

From April 1, 1940 to March 31, 1941

	Gross Receipts	Refunds	Net Revenue
Land sales principal	$ 9,601.42	$ 90.03	$ 9,511.39

STATEMENT D.

STATEMENT OF RECEIPTS, REVENUE TRANSFERRED TO OTHER DEPARTMENTS

From April 1, 1940 to March 31, 1941

Services and supplies (National Forestry Programme)	$ 24.72	.....	$ 24.72
Dominion of Canada re-imbursement (National Forestry Programme)	428.94	.....	428.94
Refunds of previous year's Expenditure	141.33	.....	141.33
Angling permits	256.50	.....	256.50
Total carried to Statement A	$ 851.49	.....	$ 851.49
Special Districts (carried to Statement J): Social Service Tax	53,726.07	10.20	53,715.87
	$ 54,577.56	$ 10.20	$ 54,567.36

STATEMENT E.

STATEMENT OF RECEIPTS AND DISPOSITION OF LEVIED SCHOOL TAXES TO THE END OF MAY, 1940

From then on collections are included with general tax collections

Receipts:	
Gross Receipts	$ 5,978.70
Refunds	.....
Net to Statement J	$ 5,978.70
Disposition:	
Repaid to Department of Municipal Affairs to apply on Implemented Loans	$ 2,460.86
To Provincial Treasurer to apply on 1939 Loan for School Requisitions	3,517.84
	$ 5,978.70

STATEMENT F.

STATEMENT OF RECEIPTS AND DISPOSITION OF HOSPITAL TAXES TO THE END OF MAY, 1940

From then on collections are included with general tax collections

Receipts:	
Gross receipts	$ 234.15
Refunds	.....
Net to Statement J	$ 234.15
Disposition:	
To Provincial Treasurer to apply on 1939 Loan for Hospital Requisitions	$ 234.15

STATEMENT G.

STATEMENT OF RECEIPTS AND DISPOSITION OF AGRICULTURAL ADVANCES

From April 1, 1940 to March 31, 1941

Receipts:				
Gross receipts				$103,907.28
Refunds				.....
Net to Statement J				$103,907.28
Disposition:			Principal	Interest
1937 Seed grain			$ 98.70	$ 9.01 Repaid to banks
1937 Seed grain			18,674.68	5,286.21 To Provincial Treasurer
	Principal	Interest		
Audit Statement	$18,765.67	$ 5,297.60		
Less 1940 collections returned from Department of Municipal Affairs	$18,674.68	$ 5,286.21		
	$18,674.68	$ 5,286.21		
1938 Agricultural advances			$55,695.60	$ 8,935.24 Repaid to banks
1936 Seed grain			1,201.56	431.95 To Provincial Treasurer
1939 Agricultural advances			4,354.71	330.54 To Provincial Treasurer
1937-38 Feed and fodder			4,083.81	674.25 To Provincial Treasurer
1938-39 Feed and fodder			3,768.19	362.83 To Provincial Treasurer
			$87,877.25	$16,030.03
				$ 87,877.25
				16,030.03
				$103,907.28

STATEMENT H.

GOVERNMENT OF THE PROVINCE OF ALBERTA
DEPARTMENT OF LANDS AND MINES
SPECIAL AREAS TRUST ACCOUNT
STATEMENT OF RECEIPTS AND PAYMENTS
For the year ended March 31, 1941

Cash in Bank, March 31, 1940		$112,796.73
Receipts:		
Grazing rentals	$ 54,732.68	
Cultivation rentals	41,426.21	
Sale of buildings	8,545.52	
Bank interest	1,207.29	
Equipment rentals, 1939	4,953.62	
Equipment rentals, 1940	9,194.84	
Miscellaneous	836.60	
		120,896.76
		$233,693.49
Payments:		
Construction of dams	$ 230.80	
Community pastures	5,600.07	
Grass seed	1,764.60	
Hay meadows	60.80	
Purchase of equipment	17,225.00	
Equipment maintenance	8,236.19	
Funds transferred to Special Districts Trust Account	160,000.00	
International Business Machine costs	3,736.75	
Miscellaneous	2,102.05	
		$198,956.26
Cash in bank, March 31, 1941		$ 34,737.23

STATEMENT I.

GOVERNMENT OF THE PROVINCE OF ALBERTA
DEPARTMENT OF LANDS AND MINES
SPECIAL DISTRICTS' TRUST ACCOUNT
STATEMENT OF RECEIPTS AND PAYMENTS
For the year ended March 31, 1941

Cash in bank, March 31, 1940		$ 45,909.40
Receipts:		
Funds transferred from Improvement Districts' Trust Account	$ 380.12	
Funds transferred from Special Areas Trust Account	160,000.00	
General tax collections	117,310.57	
Bank interest	182.29	
Loan from Provincial Treasurer (Repaid)	29,741.36	
Reimbursement of Special Areas items charged to Special Districts Trust during year ending March 31, 1940	877.02	
Miscellaneous	1,735.53	
		310,226.89
		$356,136.29
Payments:		
School requisitions	$118,965.11	
Hospital requisitions, 1940	21,162.82	
Repayment of amount owing to Municipal Affairs Hospital Requisition Trust Account	39,366.24	
Repayment, with interest, of loan from Provincial Treasurer	30,021.86	
Road maintenance	28,651.85	
Advance to liquidator for payment of liabilities of former school districts in Special Areas	16,000.00	
Direct relief	9.884.47	
Old age pensions	9,471.52	
Mothers' allowance	6,942.75	
Buildings	5,560.20	
Land Titles Office fees	1,720.00	
Pests and weeds	676.97	
Child welfare	618.37	
Special Areas items charged to Special Districts Trust Account	416.73	
Repayment of debentures of former school districts in Special Areas	348.25	
Purchase of equipment	131.30	
Pensions for the blind	82.08	
Miscellaneous	747.53	
		290,768.05
Cash in bank, March 31, 1941		$ 65,368.24

As $230,069.95, general taxes, were not written up at March 31, 1941, the amount collected on general taxes should be $347,380.52. The true cash standing of the Special Districts should be $295,438.19, rather than the amount of cash in the bank of $65,368.24. $41,713.93, general tax collections, are being transferred to Department of Municipal Affairs, re I.D's 121 and 122.

STATEMENT J.

STATEMENT OF RECEIPTS
SPECIAL AREAS AND SPECIAL DISTRICTS
From April 1, 1940 to March 31, 1941

		Gross Receipts	Refunds	Net
TAXES:				
General Tax, Statement I		$ 357,019.66	$ 9,639.14	$ 347,380.52
Social Service Tax, Statement D		53,726.07	10.20	53,715.87
Levied School Tax, Statement E		5,978.70	.....	5,978.70
Hospital Tax, Statement F		234.15	.....	234.15
Reporting School Tax		9,262.86	.....	9,262.86
Refunded to school districts	$8,799.59			
5% commission to Special Districts Trust Account	463.27			
Total Collections	$9,262.86			
Hail tax		4,301.98	.....	4,301.98
Refunded to Hail Board	$4,086.90			
5% commission to Special Districts Trust Account	215.08			
	$4,301.98			
TOTAL TAX COLLECTIONS		430,523.42	9,649.34	420,874.08
Funds transferred from Improvement Districts Trust Account, Statement I		380.12	.....	380.12
Special Districts Bank Interest, Statement I		182.29	.....	182.29
Special Districts Miscellaneous, Statement I		1,057.18	.....	1,057.18
Statement I	$ 1,735.53			
Less: Reporting schools commissions	$463.27			
Hail commissions	215.08			
	678.35			
	$ 1,057.18			
Special Aras Trust Receipts		107,018.91	270.61	106,748.30
Statement H	$120,896.76			
Less: Equipment rentals, 1939	$4,953.62			
Equipment rentals, 1940	9,194.84			
	14,148.46			
	$106,748.30			
Agricultural Advances, Statement G		103,907.28	.....	103,907.28
Collections for Department of Agriculture:				
Horse vaccine		553.50	.....	553.50
Brand and sawdust		42.39	.....	42.39
		$ 643,665.09	$ 9,919.95	$ 633,745.14

STATEMENT K.

STATEMENT OF RECEIPTS BY BRANCHES
For Fiscal Years Ending March 31, 1940 and March 31, 1941

	Fiscal year ending March 31, 1940	Fiscal year ending March 31, 1941
INCOME ACCOUNT:		
Lands and Grazing Branch	$ 148,286.74	$ 125,544.35
Timber Branch	359,786.16	612,175.84
Mining Lands Branch	1,050,221.46	945,333.30
School Lands Branch	371,626.59	337,777.81
Miscellaneous	14,177.87	10,663.08
CAPITAL ACCOUNT:		
Land sales principal	8,702.54	9,511.39
TRANSFERRED TO OTHER DEPARTMENTS	19,888.05	851.49
SCHOOL LANDS TRUST FUND	83,664.73	76,589.34
SPECIAL AREAS AND SPECIAL DISTRICTS:		
Taxes	283,878.81	420,874.08
Funds transferred from Improvement Districts Trust Account	13,243.80	380.12
Special Districts Bank Interest	21.63	182.29
Special Districts Miscellaneous	1,354.09	1,057.18
Special Areas Trust Receipts	70,329.23	106,748.30
Agricultural advances	46,380.68	103,907.28
Horse vaccine	2,793.50	553.50
Bran and sawdust	66.32	42.39
UNAPPLIED RECEIPTS CARRIED FORWARD:		
Suspense	61,007.15	38,035.14
Improvements	4,308.07	2,899.21
Land patents cultivation crop share	404.16	1,492.29
School lands cultivation crop share	13,494.10	33,791.91
Grazing permits, fees, rentals, etc.	3,853.04	25,409.25
	$2,557,488.72	$2,853,819.54

STATEMENT L.

SCHOOL LANDS BRANCH
STATEMENT OF RECEIPTS
April 1, 1940 to March 31, 1941

	Receipts	Refunds	Net Revenue
INCOME ACCOUNT:			
Sales: interest	$ 70,706.67	$ 300.00	$ 70,406.67
Grazing fees, rentals, etc.	14,975.44	225.74	14,749.70
Hay fees, dues, etc.	909.44	27.00	882.44
Improvements	135.00	60.00	75.00
Cultivation fees, rentals, etc.	62,694.94	15,071.96	47,622.98
Miscellaneous leases	376.13	.....	376.13
Timber permits, fees, dues, etc.	37,514.37	2,313.18	35,201.19
Coal fees, rentals, etc.	4,191.79	.....	4,191.79
Coal mining royalties	15,841.24	.....	15,841.24
Petroleum and natural gas fees, rentals, etc.	36,298.24	1.50	36,296.74
Petroleum and natural gas royalties	111,371.14	.....	111,371.14
Miscellaneous	779.98	17.19	762.79
	$ 355,794.38	$ 18,016.57	$ 337,777.81
TRUST ACCOUNT:			
School lands sales principal	77,145.39	556.05	76,589.34
	$ 432,939.77	$ 18,572.62	$ 414,367.15

STATEMENT M.

ALBERTA SCHOOL LANDS TRUST FUND
BALANCE SHEET—MARCH 31, 1941

ASSETS

Cash in bank and on hand		$ 21,395.62	
Investments:			
Dominion of Canada debentures	$10,225,517.60		
Accrued interest	402.41		
		$10,225,920.01	
Accounts Receivable:			
Undue principal	933,569.27		
Arrears principal	827,978.16		
		1,761,547.43	
			$12,008,863.06

LIABILITIES

Alberta School Lands Trust Fund	$12,008,863.06	
		$12,008,863.06

STATEMENT N.

ALBERTA SCHOOL LANDS SALES
REVENUE ACCOUNT
April 1, 1940 to March 31, 1941

Arrears interest as at March 31, 1940	$ 562,763.59	
Interest charges	257,947.08	
Interest on reinstated accounts	141,055.31	
Interest revenue		$ 70,406.67
Interest on cancelled sales written off		20,892.05
Amounts transferred from cultivation leases held on reinstated sales		39,639.84
Interest reductions granted by School Land Board		297,794.85
Arrears interest as at March 31, 1941		533,032.57
	$ 961,765.98	$ 961,765.98

STATEMENT O.

STATEMENT OF COLLECTIONS ON TAX RECOVERY LANDS
April 1, 1940 to March 31, 1941

Grazing permits		$ 2,076.57
Grazing rentals		3,874.54
Improvements		40.00
Sales principal		928.40
Sales interest		19.20
Cultivation permits		18.00
Cultivation rentals		810.22
Cultivation crop shares		3,979.65
Mineral surface rentals		16.07
Miscellaneous leases		32.48
Miscellaneous use permits		.75
Miscellaneous sale of improvements		88.66
Sundry revenue		30.09
		$ 11,914.63
Office fees		806.00
		$ 12,720.63

Special Areas Administration

REPORT OF THE SPECIAL AREAS BOARD, A. C. McCULLY, Chairman

In the previous report of The Special Areas Board attention was drawn to the transfer of all responsibility of administration to the Department of Lands and Mines, and the resulting necessity of reorganization.

With a view to facilitating the work of administration, it was decided to move the Board's offices to some point within the area. On May 1st, 1940 the Board, together with all files, was transferred from Edmonton to Hanna, and temporary offices were opened in the building then occupied by the staff of Special District, No. 2, the local work of Special District, No. 2 being absorbed by the Board members and staff.

During the summer a site was purchased and an up-to-date building erected, which is now occupied by the Board and staff.

In the year under review 560 cultivation permits, 1,126 grazing permits and 162 hay permits were issued. The revenue derived from these sources may be found elsewhere in this report in the Statement of Receipts, Special Areas Trust Account.

Following the policy of issuing new long term leases to residents of the area, 196 applications were dealt with. In dealing with these applications, old allotments and leases were cancelled and a decided effort was made to re-allocate these and other available Crown lands in a manner so that the lease of each applicant would be in as compact a block as possible, at all times recognizing the necessity of having the same well watered. Arrears were consolidated and spread over varying periods of from ten to twenty years.

As a result of the policy to exchange privately owned lands for more desirable Crown lands, 33 applications were received and dealt with, 14 were recommended, 15 were refused, and 4 were held for further investigation.

During the year approximately 90,000 pounds of crested wheat grass were harvested on Crown lands at an average cost of 3c per pound. This includes the cost of harvesting, cleaning and sacking. Of this amount, 22,187 pounds were distributed to 129 farmers for seeding on Crown lands. Owing to the early freeze-up in 1940, the balance of the seed was not distributed until the spring of 1941. At this time 71,656 pounds were distributed to 358 farmers. This latter item will be included in the 1942 report.

The Prairie Farm Rehabilitation Act was again inactive in this area. Consequently, with the exception of a few private constructions, very little water conservation was developed. A small amount of repair work was completed.

Ducks Unlimited constructed three dams during the season, the largest being on the outlet to Plover Lake, a large shallow lake which usually dries up towards the end of the season. With another average run-off a permanent water supply will now be assured in this locality.

Further development work was continued with respect to community pastures and head tax districts, which make some 256,000 acres of pasture lands available to residents of the area who have not sufficient grazing lands adjacent to their own holdings. A total of 3,577 head was pastured during the season.

The majority of settlers using these pastures are the small men who had to sell off their herds under the Dominion Government regulations during the dry

years. These men are building up their herds again and it is felt that the community pastures will be of great assistance to them.

During the season the Board's power grader covered 1,300 miles, the work consisting of light grading and heavy maintenance. The D4 caterpillar equipped with Carry Bug and Bull Dozer operated on heavy repair work such as washouts and approaches to culverts and bridges.

In August an outfit consisting of a D8 caterpillar and a 48" elevating grader was purchased. This outfit completed 27 miles of high standard elevated grade at an approximate operating cost of $100.00 per mile. A bridge crew, consisting of three men with truck, built 13 bridges, repaired 12 and salvaged 10; built 35 culverts and repaired 25; unloaded several car-loads of posts and lumber; delivered posts and wire to community pastures, and grass seed throughout the area.

The amount of $28,651.85 shown in the financial statement as road maintenance represents payments in cash. In addition to the above, road work was completed and applied on taxes and relief in the amount of $16,658.56, or a total of $45,310.41 was spent on road work.

Statements of rceipts and payments are kept under two headings, namely, Special Districts Trust Account and Special Areas Trust Account. Special Districts Trust Account represents the collection and disbursement of moneys collected from titled lands, the Special Areas Trust Account from Crown lands.

SPECIAL DISTRICTS TRUST ACCOUNT

STATEMENT OF RECEIPTS AND PAYMENTS

For the year ended March 31, 1941

Cash in bank, March 31, 1940		$ 45,909.40
Receipts:		
Funds transferred from Improvement Districts' Trust Account	$ 380.12	
Funds transferred from Special Areas Trust Account	160,000.00	
General tax collections	117,310.57	
Bank interest	182.29	
Loan from Provincial Treasurer (Repaid)	29,741.36	
Reimbursement of Special Areas items, charged to Special Districts Trust Account during year ending March 31, 1940	877.02	
Miscellaneous	1,735.53	
		$ 310,226.89
		$ 356,136.29
Payments:		
School requisitions	$ 118,965.11	
Hospital requisitions, 1940	21,162.82	
Repayment of amount owing to Municipal Affairs Hospital Requisition Trust Account	39,366.24	
Repayment, with interest, of loan from Provincial Treasurer	30,021.86	
Road maintenance	28,651.85	
Advance to liquidator for payment of liabilities of former school districts in Special Areas	16,000.00	
Direct relief	9,884.47	
Old age pensions	9,471.52	
Mothers' allowances	6,942.75	
Buildings	5,560.20	
Land Titles Office fees	1,720.00	
Pests and weeds	676.97	
Child welfare	618.37	
Special Areas items charged to Special Districts Trust Account	416.73	
Repayment of debentures of former school districts in Special Areas	348.25	
Purchase of equipment	131.30	
Pensions for the blind	82.08	
Miscellaneous	747.53	
		290,768.05
Cash in bank, March 31, 1941		$ 65,368.24

As a total of $230,069.95, general taxes, was not written up at March 31, 1941, the amount collected on general taxes should be $347,380.52. The true cash standing of the Special Districts should be $295,438.19, rather than the amount of cash in the bank of $65,368.24. A total of $41,713.93, general tax collections, is being transferred to the Department of Municipal Affairs, re Improvement Districts Nos. 121 and 122.

SPECIAL AREAS TRUST ACCOUNT
STATEMENT OF RECEIPTS AND PAYMENTS
For the year ended March 31, 1941

Cash in bank, March 31, 1940		$ 112,796.73
Receipts:		
Grazing rentals	$ 54,732.68	
Cultivation rentals	41,426.21	
Sale of buildings	8,545.52	
Bank interest	1,207.29	
Equipment rentals, 1939	4,953.62	
Equipment rentals, 1940	9,194.84	
Miscellaneous	836.60	
		120,896.76
		$ 233,693.49
Payments:		
Construction of dams	$ 230.80	
Community pastures	5,600.07	
Grass seed	1,764.60	
Hay meadows	60.80	
Purchase of equipment	17,225.00	
Equipment maintenance	8,236.19	
Funds transferred to Special Districts Trust Account	160,000.00	
International Business Machine costs	3,736.75	
Miscellaneous	2,102.05	
		198,956.26
Cash in bank, March 31, 1941		$ 34,737.23

Owing to favourable crop conditions, good collections were made during the year. It will be noted from the financial statement that current collections were considerably in excess of current expenditures. It must not be overlooked, however, that a good portion of these collections represents arrears and as such must be used to liquidate some of the outstanding liabilities. Operating, however, in a region of extremely uncertain crop conditions, it is felt that a good reserve should be held to carry over years of poor collections, rather than to use the entire balance in paying off old liabilities.

DEPARTMENT OF LANDS AND MINES
SPECIAL AREAS AND SPECIAL DISTRICTS
CASH STATEMENT FOR THE FISCAL YEAR 1940-41
(Ending March 31, 1941)

CASH ON HAND MARCH 31, 1940 AND REVENUE FOR YEAR 1940-41:			
Cash in Bank, March 31, 1940—Special Districts Trust Account		$ 45,909.40	
Funds transferred from Department of Municipal Affairs from Improvement Districts Trust Account		380.12	
Credits of old Municipal Districts with Land Titles Office and Workmen's Compensation Board		108.28	
Special District Collections:			
General Tax	$347,380.52		
Social Service Taxes	53,715.87		
Interest Collections on Agricultural Advances	10,743.78		
Miscellaneous	1,627.25		
Road Maintenance applied on Taxes	12,902.71		
Road Maintenance applied on Relief	545.79		
All Collections from Public Lands in the Special Areas Title to which has been revested in the Crown through Tax Recovery Proceedings	55,190.65		
Special Districts Share of Grazing Collections from Crown Lands in the Special Areas	1,661.69		
Special Districts Share of Crop collected from Crown Lands in the Special Areas	1,244.20		
Bank Interest	182.29		
		$485,194.75	
			$531,592.55
GOVERNMENT CONTRIBUTIONS:			
Cash in Bank, March 31, 1940—Special Areas Trust Account		$112,796.73	
1941 Special Areas Collections on Provincial Lands		48,651.76	
Department of Education Special Grant		100,000.00	
Appropriation No. 1134		69,378.36	
Appropriation No. 1181		23,436.06	
			354,262.91
TOTAL			$885,855.46

PAYMENTS:

Special Districts:			
Social Service Taxes	$ 53,715.87		
Schools	216,988.05		
Hospitals	23,139.88		
Administration Costs	69,378.36		
Old Age Pensions	9,471.52		
Blind Pensions	82.08		
Mothers' Allowance	6,942.75		
Child Welfare	618.37		
Direct Relief	9,884.47		
Medical Relief	17,836.26		
Interest on Agricultural Advances	10,743.78		
Charitable and Hospital Bills	5,599.80		
Road Maintenance Cash	14,503.39		
Road Maintenance applied on Taxes	12,902.71		
Road Maintenance applied on Relief	545.79		
Pests and Weeds	676.97		
Buildings	5,560.20		
Land Titles Office Fees	1,720.00		
Miscellaneous Costs	1,972.56		
Purchase of Equipment	17,356.30		
Maintenance of Equipment	8,236.19		
International Business Machine Costs	3,736.75		
Payment of Old School District Liabilities	16,000.00		
Interest on Provincial Treasurer Temporary Loan (Repaid)	280.50		
Repayment of Amount owing to Municipal Affairs Hospital Requisition Account	39,366.24		
Repayment of Debentures of former School Districts in the Special Areas	348.25		
		$547,607.04	
Special Areas:			
Construction of Dams	$ 230.80		
Community Pastures	5,600.07		
Grass Seed	1,764.60		
Hay Meadows	60.80		
Miscellaneous	416.73		
		8,073.00	
TOTAL PAYMENTS			$555,680.04
CASH BALANCE			$330,175.42

CASH BALANCE

Special Districts Trust Account	$295,438.19
Special Areas Trust Account	34,737.23
	$330,175.42

Unpaid 1940-41 *Bills*:	
Balance Rosenheim 1940 School Requisition paid in April, 1941	$ 956.06
Balance Rosenheim, 1940 Hospital Requisition paid in April, 1941	1,977.06
Provincial Mental Hospital	180.00
Provincial Training School	360.00
Interest on Implemented Loans	2,097.81
Hanna Municipal Hospital Loans	7,938.25
Interest on Direct Loans	3,502.74
Interest on Agricultural Advances	24,226.17
	$ 41,238.09
1940 *Levies*:	
General Tax	$294,687.21
Social Service Tax	37,447.11
TOTAL LEVY	$332,134.32

J. Harvie,
Deputy Minister,
Department of Lands and Mines.

ANNUAL REPORT

OF THE

Department of Lands and Mines

OF THE

PROVINCE OF ALBERTA

FOR THE

Fiscal Year Ended March 31st

1942

PUBLISHED BY ORDER OF THE LEGISLATIVE ASSEMBLY

EDMONTON:
PRINTED BY A. SHNITKA, KING'S PRINTER
1943

To the Honourable J. C. Bowen,
Lieutenant-Governor of the Province of Alberta.

SIR:

I have the honour to submit the report of the Department of Lands and Mines for the fiscal year ended March 31st, 1942.

I have the honour to be, Sir,

Your obedient servant,

N. E. TANNER,
Minister of Lands and Mines.

Edmonton, January 29, 1943.

TABLE OF CONTENTS

PAGE

REPORT OF THE DEPUTY MINISTER 9

I.—ACTIVE SERVICE ENLISTMENTS

Report of the Statistician 23

II.—LANDS ADMINISTRATION

Report of the Provincial Lands Division 26

Report of the School Lands Division 28

III.—FORESTRY ADMINISTRATION

Report of the Forestry Division 30

IV.—FISHERIES AND GAME ADMINISTRATION

Report of the Fish and Game Commissioner 56

V.—MINING LANDS ADMINISTRATION

Report of the Mining Lands Division 70

VI.—TECHNICAL DIVISION

Report of the Technical Division 85

VII.—ACCOUNTS ADMINISTRATION

Report of the Accounting Division 95

VIII.—SPECIAL AREAS ADMINISTRATION

Report of the Special Areas Board 102

GOVERNMENT OF ALBERTA

DEPARTMENT OF LANDS AND MINES

Resulting from the transfer on October 1st, 1930, of Alberta's natural resources from federal to provincial control, the Department of Lands and Mines was on this date brought into being by the Alberta Government. The general purpose of the new Department was to be one of supervision and management of the resources in question.

Ministers of the Department, responsible at different periods for this administration, appear as follows:

Hon. R. G. Reid, appointed October 2nd, 1930,
Hon. Hugh W. Allen, appointed July 10th, 1934,
Hon. Charles C. Ross, appointed September 3rd, 1935,
Hon. N. E. Tanner, appointed January 5th, 1937.

CHIEF OFFICERS

DEPARTMENT OF LANDS AND MINES

March 31st, 1942

Honourable N. E. Tanner	*Minister of Lands and Mines*
John Harvie	*Deputy Minister of Lands and Mines*
T. C. Rankine	*Departmental Solicitor*
V. A. Wood	*Director of Lands*
M. Gossip	*Agent, Calgary Land Agency*
R. Cruickshank	*Agent, Peace River Land Agency*
J. W. Hamilton	*Superintendent of Mining Lands*
H. Ingrey	*Inspector of Mining Rights*
T. F. Blefgen	*Director of Forestry*
E. S. Huestis	*Acting Assistant Director of Forestry*
F. W. Neilson	*Chief Timber Inspector*
A. Earnshaw	*Radio Superintendent*
E. S. Huestis	*Fish and Game Commissioner*
D. E. Forsland	*Superintendent of Game*
H. B. Watkins	*Superintendent of Fisheries*
T. W. Dalkin	*Superintendent of the Technical Division*
A. A. Millar	*Chief Inspector of Mines*
E. R. Edwards	*Acting Accountant*
J. L. Irwin	*Statistician*

Special Areas Board

Head Office: Hanna, Alberta

A. C. McCully	*Chairman*
D. M. Graham	*Secretary*
J. R. McBeath	*Member*
J. H. Todrick	*Supervisor, Edmonton*

Special District Agents

D. M. Graham	*Hanna*
R. B. Langley	*Oyen*
D. J. Wilson	*Consort*
S. Cherkas	*Lomond*

The Petroleum and Natural Gas Conservation Board

Head Office: Calgary

J. J. Frawley	*Chairman*
M. D. Kemp	*Member*

REPORT

OF THE

Department of Lands and Mines

1941-42

Honourable N. E. Tanner,
Minister of Lands and Mines,
Edmonton.

SIR:

I have the honour to submit the twelfth Annual Report of the Department of Lands and Mines for the fiscal year ended March 31st, 1942.

In the report of the previous year, 1940-41, I emphasized the considerable progress made by industrial development during the year, and the Department's relationship to this development in the matter of administration. A similar report is made for the year now under review. The noticeable advancement of these two years has been largely due of course to the ever increasing wartime demands for products manufactured from Alberta's natural resources.

Evidence of the Department's continued progress is given under the heading of Revenue and Production which follows.

New records in departmental revenue and surplus for the year are once again shown, and amongst the increases appearing in production totals of the various natural resources, those of oil, coal and lumber, as in the previous year, are outstanding.

The year 1941-42 has been, needless to say, an extremely active one for all branches of the Department. New duties have ben addd to old, and old ones have been intensified.

A noticeable addition, both to department personnel and to administrative responsibility, was the transfer at the beginning of the year of the Fisheries and Game Branches from the Department of Agriculture to this Department.

An interesting and important innovation is introduced into this year's report by the appearance of two graphs, in the Accounting Division's section, dealing firstly with gross receipts and secondly with yearly net revenue on income account.

The introduction of these graphs required careful consideration, the desired objective being to show at a glance not only financial progress over a twelve year period but, from a comparative standpoint, the relationship in such progress of surplus to expenditure in the general picture of net revenue.

This has not been previously attempted. The reports of past years' totals coming under these three headings required a careful scrutiny and checking to discover, in the final analysis, their individual relationship to each other.

By the publication of these two graphs, this relationship, over the period of years stated, immediately becomes apparent, and demonstrates at once the rather important point that while totals of surpluses and net revenues have shown a steady and encouraging growth, those of expenditures have remained almost unchanged.

Department's Revenue and Production, 1941-42

A surplus of $1,745,929.82, highest in the Department's history, and an increase of $384,714.29 over last year's figure, is recorded. All branches of the Department showed an increase, particularly those of Mining Lands and Timber. This record surplus has appeared in spite of increased expenditures. Expenditures totalled $847,555.32, an increase of $177,276.47 over last year, caused by operational costs of the Fisheries and Game branches transferred to the Department and by considerably increased fire-fighting costs. Details of these accounts, showing increases and decreases, are given in the Accounting Division's section of this Report.

Petroleum production reached a new high total, with an increase of 996,905 barrels. Natural gas consumption increased by 2,741,300 mcf.

Coal, with a new record, increased by 764,976 tons and briquettes, with an increase of 60,061 tons, almost doubled last year's figure. Electrical power, used in the operation of Alberta coal-mines, increased by 4,313,265 k.w. hours. Coke had a small decrease of 399 tons.

Shale mined during the year increased by 8,495 tons. Bricks manufactured from shale mined showed an increase of 3,707,724, and tiles manufactured from same, an increase of 2,368 tons.

Lumber, manufactured from timber cut on provincial and school lands and on forest reserves, with a total of 272,345,129 F.B.M., showed an increase of 86,592,625 F.B.M. over last year's total figure.

Other production increases appearing for the year are as follows:—stone, 3,961 tons; salt, 8,086 tons; cement, 78,332 barrels; lime, 1,078 tons. A decrease of 765,981 tons is given in production of sand and gravel, together with a decrease of 22 tons in sodium sulphate.

Lands Administration

Land Agencies.—Land agencies continued to be maintained at Calgary and Peace River. The Lethbridge Agency was discontinued and a sub-agency was opened in its place. The Medicine Hat Sub-agency was discontinued. Sub-agencies in operation during the year were at Bonnyville, Lac La Biche, Athabaska, Hines Creek and Grande Prairie.

School Lands' Timber Administration.—With a view to obtaining centralization the administration of school lands' timber was transferred to the Forestry Division.

Other details surrounding provincial and school lands administration are given in the Director of Lands section of this Report.

Forest Service

Fire Season.—The worst fire season in the life of this Department occurred within the fiscal year under review. Starting in April in the central part of the province, and continuing, further south, till July, the fires took as toll the life of a watchman of one of the sawmills and a vast quantity of standing timber, presenting as a result, and as will be noted in the accompanying statement, the second highest cost of suppression yet experienced by this Department—$170,488.53—and the highest total loss of $2,050,979.43. Loss of human life might well have been considerably increased had it not been for the efforts of the Forestry staff, and the splendid co-operation of the general public.

As will be noticed by the accompanying statement, the results of such a year have brought the grand total of costs of suppression to nearly a million dollars, and of total losses to nearly ten million.

SUMMARY OF FIRE LOSSES WITHIN ALBERTA FOREST RESERVES

Period	Number of Fires	Area (Acres)	Salvable Timber M.f.b.m.	Salvable Timber (Cords)	Unsalvable Timber M.f.b.m.	Unsalvable Timber (Cords)	Cost of Suppression	Total Loss
October 1, 1930 to March 31, 1931	9	41.925	.....	.....	2.00	129.00	$ 551.67	$ 71.69
April 1, 1931 to December 31, 1931	31	52,218.05	2,370.50	3,086.00	6,295.73	111,599.00	17,624.12	154,651.47
Calendar Year 1932	32	2,555.75	8.00	15,863.00	3,845.00	1,005.60	3,491.04	8,790.73
Calendar Year 1933	39	29,275.88	26.75	1,201.00	19,188.25	108,414.00	18,409.92	95,796.93
Calendar Year 1934	47	21,963.00	1,510.00	9,200.00	2,661.00	209,550.00	31,118.51	96,195.87
Calendar Year 1935	12	6.50	.....	.....	.....	60.00	94.56	45.50
Calendar Year 1936	52	165,465.00	7,573.00	25.00	885,192.00	764,594.00	108,894.48	1,504,273.45
Calendar Year 1937	17	90.00	.....	.....	37,500.00	8.50	387.38	292.05
Calendar Year 1938	18	13,111.50	13,740.00	5.00	518.50	1.50	9,422.79	36,556.45
Calendar Year 1939	46	38,213.75	292.00	1,982.00	4,229.00	54,721.00	49,056.68	101,455.13
Calendar Year 1940	30	2,929.50	1,000.00	730.00	3.00	3,429.00	6,999.81	14,164.25
Calendar Year 1941	22	4,497.00	.....	3,000.00	345.50	2,028.00	2,694.96	15,432.25
TOTALS	355	330,367.855	26,520.25	35,092.00	959,779.98	1,255,539.60	$ 248,745.92	$2,027,725.77

SUMMARY OF FIRE LOSSES OUTSIDE ALBERTA FOREST RESERVES

October 1, 1930 to March 31, 1931	47	11,145.19	155.00	.....	3.75	.....	$ 686.64	$ 79,950.85
April 1, 1931 to December 31, 1931	591	552,658.07	134,536.00	104,199.00	122,690.50	684,625.50	82,088.89	712,835.79
Calendar Year 1932	347	133,562.14	274.75	12,215.00	40,627.15	132,743.00	15,320.51	152,085.58
Calendar Year 1933	249	64,489.12	4,383.50	13,953.50	41,694.50	59,545.00	16,971.75	100,008.43
Calendar Year 1934	193	36,907.00	3,404.50	3,159.00	547.50	14,464.00	7,050.51	29,825.77
Calendar Year 1935	85	6,313.25	160.00	1,195.00	1,513.00	5,371.00	1,558.90	5,722.50
Calendar Year 1936	196	38,989.00	2,374.00	23,116.00	659.00	6,017.00	13,647.81	45,656.85
Calendar Year 1937	358	835,169.00	14,702.00	33,113.00	251,544.00	609,837.00	54,952.28	1,088,173.90
Calendar Year 1938	503	1,745,234.00	35,382.50	23,054.00	650,844.50	1,974,651.50	207,632.70	2,009,679.82
Calendar Year 1939	453	390,925.50	1,305.00	19,336.00	128,129.00	537,186.00	99,241.41	540,655.08
Calendar Year 1940	283	471,314.75	200.00	150.00	141,861.00	775,736.00	60,231.67	939,866.77
Calendar Year 1941	423	1,350,927.50	43,710.00	118,480.00	201,674.50	1,905,499.00	167,793.57	2,035,547.18
TOTALS	3,728	5,637,634.52	240,587.25	351,970.50	1,581,788.40	6,705,675.00	$ 727,176.64	$7,740,008.52

SUMMARY OF FIRE LOSSES WITHIN AND OUTSIDE ALBERTA FOREST RESERVES

October 1, 1930 to March 31, 1931	56	11,187.115	155.00	.....	5.75	129.00	$ 1,238.31	$ 80,022.54
April 1, 1931 to December 31, 1931	622	604,876.12	136,906.50	107,285.00	128,986.23	796,224.50	99,713.01	867,487.26
Calendar Year 1932	379	136,117.89	282.75	28,078.00	44,472.15	133,748.60	18,811.55	160,876.31
Calendar Year 1933	288	93,765.00	4,410.25	15,154.50	60,882.75	167,959.00	35,381.67	195,805.36
Calendar Year 1934	240	58,870.00	4,914.50	12,359.00	3,208.50	224,014.00	38,169.02	126,021.64
Calendar Year 1935	97	6,319.75	160.00	1,195.00	1,513.00	5,431.00	1,653.46	5,768.00
Calendar Year 1936	248	204,454.00	9,947.00	23,141.00	885,851.00	770,611.00	122,542.29	1,549,930.30
Calendar Year 1937	375	835,259.00	14,702.00	33,113.00	289,044.00	609,845.50	55,339.66	1,088,465.95
Calendar Year 1938	521	1,758,345.50	49,122.50	23,059.00	651,363.00	1,974,653.00	217,055.49	2,046,236.27
Calendar Year 1939	499	429,139.25	1,597.00	21,318.00	132,358.00	591,907.00	148,298.09	642,110.21
Calendar Year 1940	313	474,244.25	1,200.00	880.00	141,864.00	779,165.00	67,231.48	954,031.02
Calendar Year 1941	445	1,355,424.50	43,710.00	121,480.00	202,020.00	1,907,527.00	170,488.53	2,050,979.43
TOTALS	4,083	5,968,002.375	267,107.50	387,062.50	2,541,568.38	7,961,214.60	$ 975,922.56	$9,767,734.29

Timber Industry.—Lumber manufactured during the year from timber cut on provincial and school lands and on forest reserves reached the impressive total of 272,345,129 f.b.m., a very definite lumber production record. Wartime demands are of course responsible for this most noticeable increase. The demand exceeded the supply and problem of labour supply became a major one for the timber operators. A small increase in price was permitted by the Timber Controller to take care of increased living costs and to allow for a reasonable profit. Beyond this, however, ceiling prices have prevented the price of lumber from soaring to unreasonable heights. The following comparative statement will demonstrate the steady increase of production in the past few years.

LUMBER MANUFACTURED FROM TIMBER CUT ON PROVINCIAL AND SCHOOL LANDS AND ON FOREST RESERVES

Fiscal Year	F.B.M.
1935-36	89,919,530
1936-37	104,492,420
1937-38	146,301,510
1938-39	122,450,579
1939-40	131,497,021
1940-41	185,752,504
1941-42	272,345,129
Total	1,052,758,693
Increase this year in comparison with last	86,592,625

Fisheries

Reference has already been made to the effect that the Fisheries and Game branches were returned to this Department for administration at the beginning of the fiscal year 1941-42.

As will be noted by the opening remarks of the Fish and Game Commissioner in his section of this Report, the Fisheries Service, upon being taken over by the Department, was subjected to a careful scrutiny regarding existing policies, and an examination regarding experiences of similar administrations throughout the North American continent was made, with a view to obtaining the highest degree of efficiency for the mangement of this important branch of Alberta's natural resources.

Distribution of Fry.—Distribution of game fish fry (trout of all species and perch) during the year to Alberta's rivers, creeks and lakes totalled 2,006,900.

It has been found that the policy of distributing fry to angling streams throughout the provice has for many reasons failed to increase the fish population in any noticeable manner.

After examining other systems, it was decided that the distribution of fingerlings, of as large a size as possible, proved to be the most successful procedure in return for money expended. On making this decision, and in consideration of costs necessary for the construction of rearing ponds, the placing of such ponds in localities where they would be most effective was given special attention.

Whitefish Hatchery—The whitefish hatchery at Canyon Creek, Lesser Slave Lake, was remodelled during the year in connection with its power supply, resulting in Diesel plants replacing the steam ones formerly in use.

A total of 58,850,000 eyed whitefish eggs from the hatchery were planted during the year in Alberta lakes.

Commercial Fishing.—Commercial fish of all species, taken during the year, totalled 5,920,099 pounds.

TOTAL AMOUNT OF FISH TAKEN FOR COMMERCIAL PURPOSES AND VALUATIONS

Fiscal Year	Weight (lbs.)	Value to fishermen	Value as marketed
*1930-31	1,851,848	$ 70,624	$ 94,032
1931-32	3,337,980	115,928	189,928
1932-33	2,655,214	94,440	130,809
1933-34	3,566,356	131,124	200,755
1934-35	4,059,436	145,190	244,071
1935-36	4,921,542	200,394	287,726
1936-37	6,029,857	252,773	385,344
1937-38	6,201,917	252,771	464,842
1938-39	7,242,746	236,851	463,457
1939-40	8,661,781	202,107	574,732
1940-41	7,285,582	206,191	442,752
1941-42	5,920,099	198,400	437,137
Totals	61,734,358	$2,106,793	$3,915,585
Decreases this year in comparison with last	1,365,483	$ 7,791	$ 5,615

The decrease, as shown above, was due principally to the closing of Lake Wabamun fishing, and the reduction in catches at Cold Lake and Lac La Biche.

SUMMARY OF CONFISCATIONS AND PROSECUTIONS CAUSED BY INFRACTIONS OF THE FISHERIES REGULATIONS

Fiscal Year	Confiscations	Prosecutions
1937-38	188	132
1938-39	116	86
1939-40	119	134
1940-41	112	107
1941-42	59	78
Totals	594	537
Decreases this year in comparison with last	53	29

*Six months period.

Game

The Game Branch, in company with that of the Fisheries, was returned to this Department for administration at the opening of the fiscal year under review.

The Game Act of 1941.—The return of game administration to the Department of Lands and Mines during this year synchronized with the appearance of The Game Act of 1941, which represented a revision of The Game Act of 1932 with amendments.

In this particular, an effort was made to simplify the meaning of the new act with a view to the general public becoming more conversant with its various clauses. Principal changes in the new legislation are dealt with in the Fish and Game Commissioner's report.

Trapping Area Registrations.—A review of trapping area registrations, conditions surrounding the supervision of game, together with general improvements effected is given in detail in the Commissioner's report.

Changes in Procedure.—Changes in the procedure of game administration were made during the year.

One was effected by securing a closer co-operation between the Fish and Game branches and that of the Forestry Service. In obtaining such assistance it was possible to secure supervision of fish and game and their respective activities by forest rangers.

In the redrafting of the new act, valuable assistance was given by the provincial Fish and Game Association, by the Zoological Department of the University of Alberta, and by fur farm organizations and fur dealers.

Other matters of direct interest to game, trapping and fur farming are discussed in detail in the Fish and Game Divisions' report.

ALBERTA FUR PRODUCTION

Season	Number of Pelts	Valuation
1930-31	941,401	$1,118,027
1931-32	1,145,888	877,331
1932-33	1,215,094	1,074,884
1933-34	2,270,503	1,533,799
1934-35	1,850,625	1,474,530
1935-36	1,304,966	1,540,077
1936-37	2,068,118	2,170,121
1937-38	1,476,698	1,156,013
1938-39	2,273,826	1,345,130
1939-40	3,977,118	2,514,878
1940-41	2,601,424	2,806,073
1941-42	11,713,686	5,162,635
Totals	32,839,347	$22,773,498
Increases this year in comparison with last	9,112,262	$ 2,356,562

Seasons shown above date from July 1st of one year to June 30th of the next, The noticeable increases appearing in 1941-42 are due to the unusual numbers of rabbit and squirrel pelts taken.

Mining Lands Administration

Information dealing with quantities and valuations of Alberta's non-metallic minerals produced during the year are given in the Report of the Mining Lands Division. To this is added details covering mineral rights, solid, liquid and gaseous, revenue from fees, rentals, bonuses and royalties, reservations of areas for geological examination and acquisition of varying forms of mineral leases.

Leases dealt with.—Totals of leases issued from October 1st, 1930—date of natural resources transfer—to March 31, 1942 are shown as follows:—Leases active at date of transfer, 19,635; issued, 9,851; reinstated, 94; divided, 370; cancelled, 25,997; renewed, 334; active as at March 31st 1942, 3,619. Areas covered by same are given in a separate statement.

Coal Royalties.—The table dealing with royalties on coal, produced in former years, is shown from the fiscal years of 1907-8 to 1941-42, inclusive.

Salt.—Production of salt during the year practically doubled the total figure for 1940. Reason for this increase was due to the heavy demands for this home product, which kept the reconstructed plant at Waterways working at capacity through the year.

SALT PRODUCTION

Calendar Year	Tons	Valuation
1938	3,995	$ 39,950
1939	3,322	33,220
1940	8,524	85,240
1941	16,610	166,100
Totals	32,451	$324,510
Increases this year in comparison with last	8,086	$ 80,860

NOTE: The valuation of $10.00 per ton, which is shown, is based on a well-head price only, and has no relation to a wholesale price of the commodity, which would be considerably higher. Alberta salt development started in 1938. Prior to that year, production was insignificant and no official figures are available.

Petroleum and Natural Gas

Number of Turner Valley Crude Oil Wells.—Dating from June 16th, 1936, when crude oil was discovered in Turner Valley's limestone, annual totals, dealing with the completions of such wells were as follows:—

Calendar Year	Number of Wells
1936	2
1937	22
1938	36
1939	34
1940	36
1941	46
Total	176
Increase in comparison with last year	10

Petroleum and Natural Gas Conservation Board

As stated on previous occasions oil production in Alberta is carried out under the supervision of the Petroleum and Natural Gas Conservation Board.

The underlying principle governing such administration is that of procuring a maximum production from producing oil areas with a minimum of injury to the fields from which it is procured. It is felt that the vigorous pursuit of such a policy will aid most effectively Alberta's contribution towards wartime economy.

In July 1941, the services of Robert E. Allen, Chairman of the Board, were loaned by special request of the United States Government to Harold L. Ickes, Co-ordinator at Washington. Following this change, J. J. Frawley, K.C., Member of the Board, officiated as Acting Chairman. Later in 1942, some months after the close of the fiscal year, Mr. Frawley was appointed to the position of Chairman of the Board and Mr. M. D. Kemp to Board Member.

Aviation Gasoline.—The processing of Alberta oil for aviation gasoline was continued throughout the year. Demands for this fuel from different parts of the province, and from points outside, became increasingly heavy with the very considerable growth of aerial activities.

Turner Valley Development.—Turner Valley's development and production of oil increased steadily through the year. With the completion of new wells in the north end and the N.W.H.B. 6 well in the south, the field, curving slightly to the northwest from its southern extremity, is now extended to a length of approximately 20 miles.

Other Alberta Fields.—Outside of Turner Valley, 8 other fields contributed in 1941 to Alberta's oil production with a total of 78,300 barrels. Vermilion was the most noticeable producer.

Discovered in 1939, oil recovered from this area—a viscous product with gravity running from 14° to 20°, A. P. I.—met in its classification the fuel oil demands of the railways.

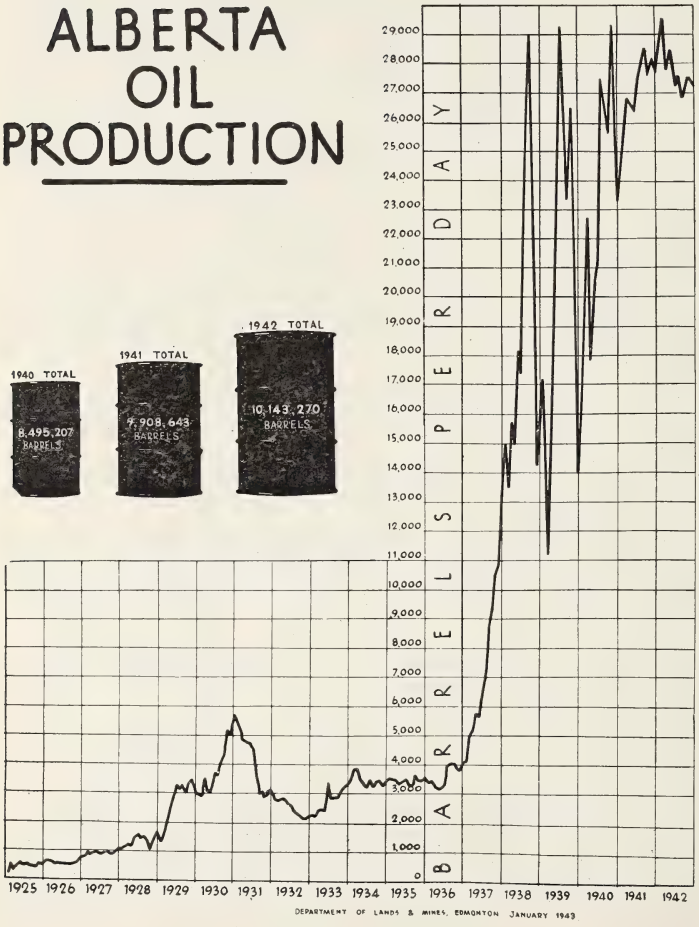
Production depths were in the neighborhood of from 1,800 to 1,900 feet. Drilling time was consequently short, and wells in certain cases had been completed in 36 hours. Gas in some instances, is of sufficient quantity to maintain flowing wells for a short time.

The use of this fuel in locomotives has been most favourably reported on. Without question the field gives promise of encouraging production with an established market for its products.

The total production of fields outside Turner Valley, though at present insignificant with the Valley's production, is nevertheless important, because it shows increase and promise of increase. It is important also because it demonstrates the wide-spread area of Alberta's oil.

Development of Bituminous Sands.—A disastrous fire took place at the Abasand plant near McMurray in the winter of 1941-42, which seriously delayed the important development work being carried out by the Company in that area. The plant had just finished construction, and production of crude oil, gasoline and Diesel was at last in evidence.

Reconstruction of the plant, which was considerably handicapped by such present problems as priorities of steel, etc., was completed by mid-summer of 1942, when production of oil was once again under way.


ALBERTA
OIL
PRODUCTION
1940 TOTAL
8,495,207
BARRELS
1941 TOTAL
7,908,643
BARRELS
1942 TOTAL
10,143,270
BARRELS
BARRELS PER DAY
29,000
28,000
27,000
26,000
25,000
24,000
23,000
22,000
21,000
20,000
19,000
18,000
17,000
16,000
15,000
14,000
13,000
12,000
11,000
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
1925 1926 1927 1928 1929 1930 1931 1932 1933 1934 1935 1936 1937 1938 1939 1940 1941 1942
DEPARTMENT OF LANDS & MINES, EDMONTON JANUARY 1943

PETROLEUM PRODUCTION IN THE BRITISH EMPIRE, 1932 TO 1942 INCLUSIVE

Country	1932		1933		1934		1935		1936	
	Barrels	Per Cent	Barrels	Per Cent	Barrels	Per Cent	Barrels	Per Cent	Barrels	Per Cent
Trinidad	10,126,121	43.1	9,561,353	41.2	10,894,363	41.2	11,671,224	40.7	13,237,030	39.2
Canada	1,044,412	4.4	1,145,333	4.8	1,401,895	5.3	1,447,204	5.0	1,504,287	4.5
Bahrein Island	902	.....	31,377	0.1	185,072	1.1	1,264,807	4.4	4,644,735	13.7
Burma	7,073,437	30.1	7,114,311	30.0	7,278,859	27.5	7,181,113	25.1	7,587,718	22.5
Brunei	1,200,026	5.1	2,035,656	8.6	2,705,350	10.2	3,302,905	11.5	3,296,938	9.7
India	1,743,878	7.4	1,628,803	6.9	1,921,863	7.3	2,037,810	7.1	1,978,329	5.8
Sarawak	2,329,733	9.9	2,206,815	9.3	1,942,591	7.4	1,776,593	6.2	1,547,882	4.6
Total British Empire	23,518,509	100.0	23,723,648	100.0	26,429,993	100.0	28,681,656	100.0	33,796,819	100.0
World Total	1,306,714,101		1,438,767,449		1,517,121,671		1,651,993,118		1,797,993,578	
Per Cent, British Empire of World		1.80		1.65		1.74		1.74		1.88

Country	1937		1938		1939		1940		1941		1942*	
	Barrels	Per Cent	Barrels	Per Cent	Barrels	Per Cent	Barrels	Per Cent	Barrels	Per Cent	Barrels	Per Cent
Trinidad	15,502,989	36.8	17,737,060	35.5	19,270,000	37.7	20,300,000	38.2	21,150,000	38.5	27,375,000	54.1
Canada	2,943,750	7.1	6,956,811	14.0	7,843,780	15.2	8,723,982	16.5	10,123,904	18.4	10,403,354†	20.5
Bahrein Island	7,762,264	18.4	8,298,000	16.7	7,588,560	14.8	7,200,000	13.5	7,070,000	12.9	7,800,000	15.4
Burma	7,847,553	18.5	7,499,500	15.0	7,396,000	14.4	7,750,000	14.6	7,900,000	14.3	2,500,000	5.0
Brunei	4,397,038	10.5	5,387,210	10.8	5,755,000	11.1	5,742,000	10.7	5,245,000	9.6	‡	.....
India	2,161,653	4.9	2,330,200	4.7	2,164,000	4.2	2,150,000	4.1	2,245,000	4.0	2,500,000	5.0
Sarawak	1,655,565	3.8	1,624,880	3.3	1,327,000	2.6	1,321,000	2.4	1,275,000	2.3	‡	.....
Total British Empire	42,270,812	100.0	49,833,661	100.0	51,344,340	100.0	53,186,982	100.0	55,008,904	100.0	50,578,354	100.0
World Total	2,046,650,389		1,979,268,510		2,068,667,520		2,158,123,000		2,227,125,000		2,056,900,000	
Per Cent, British Empire of World		2.06		2.51		2.48		2.46		2.46		2.45

*Preliminary figures.

†In the total of 10,403,354 barrels shown in this table for Canada in 1942, 10,143,270 barrels or 97.49 per cent were produced in Alberta.

‡During the brief period, early in 1942 before the scorched earth policy was put into effect in Borneo, there was some oil production in both Brunei and Sarawak, but the totals are unknown.

Production figures reported on for 1941 were given as follows:

Oil Sand Mined (tons)	21,731
Crude Oil produced (barrels)	19,519
Gasoline (barrels)	1,142
Diesel and burner oil (barrels)	4,190

ALBERTA OIL PRODUCTION BY FISCAL YEARS

Period	Barrels
1914 to close of fiscal year, 1928-29	1,453,404
Fiscal Year 1929-30	1,135,014
1930-31	1,614,202
1931-32	1,246,328
1932-33	871,082
1933-34	1,141,473
1934-35	1,246,958
1935-36	1,249,596
1936-37	1,447,661
1937-38	3,680,099
1938-39	6,651,068
1939-40	8,039,279
1940-41	9,170,931
1941-42	10,167,836
Total	49,114,931
Increase this year in comparison with last	996,905

ALBERTA OIL PRODUCTION BY CALENDAR YEARS

Calendar Year	Barrels	Calendar Year	Barrels
1914 to 1924	96,504	1934	1,265,940
1925	168,643	1935	1,263,750
1926	219,598	1936	1,320,442
1927	332,133	1937	2,796,908
1928	489,531	1938	6,742,039
1929	999,152	1939	7,594,411
1930	1,433,844	1940	8,495,207
1931	1,455,195	1941	9,908.643
1932	917,622		
1933	1,013,040	Total	46,512,602
Increase this year in comparison with last			1,413,436

NATURAL GAS CONSUMPTION

Fiscal Year	Mcf.
1940-41	26,744,271
1941-42	29,485,571

British Empire Production.—Canada in 1941 took 12th place amongst the 25 oil producing countries of the world, and 2nd place amongst the 7 production areas of the British Empire, producing 18.3 per cent of the Empire's total. In the matter of increased production within the Empire, Canada took 1st place with an increase of 1,377,661 barrels.

Percentages of interest regarding 1941 oil production are given as follows:

British Empire of World	2.47 per cent
Canada of British Empire	18.43 per cent
Alberta of Canada	98.08 per cent
Turner Valley of Alberta	99.20 per cent

Coal

Still another record year in coal production was reported for Alberta by the end of the calendar year 1941, when the total reached 6,970,064 tons, with a valuation of $19,337,420, showing an increase of 764,976 tons over 1940. An additional 227 tons were produced by farmers under permit for their own use during the year. This figure is not included in the total output already given.

As reported last year, the increased production is due to railway fuel requirements, shipments to different parts of the Dominion, especially to Ontario, and to increased domestic demands.

In last year's report a production and valuation table was produced showing annual Alberta coal totals from 1886 to date. The production table which follows shows totals from the date of transfer of the natural resources to 1941.

Total production of Alberta coal from 1886 to 1941, inclusive, is 180,975,732 tons, with a valuation of $555,772,936.

Calendar Year	Tonnage	Valuation	Calendar Year	Tonnage	Valuation
1930	5,755,911	$ 19,379,000	1936	5,696,375	$ 14,720,004
1931	4,564,290	13,415,745	1937	5,551,682	14,434,970
1932	4,870,030	13,441,193	1938	5,230,025	13,702,983
1933	4,714,784	12,197,339	1939	5,518,105	14,454,328
1934	4,748,848	12,440,617	1940	6,205,088	16,334,323
1935	5,462,973	13,946,338	1941	6,970,064	19,337,420
TOTALS				65,288,175	$177,804,260
Increase this year in comparison with last				764,976	$ 3,003,097

Disposition of Alberta Coal in 1941.—Coal sold for consumption in Alberta totalled 1,335,606 tons; sold for consumption in other provinces of Canada, 2,023,110 tons; sold to the United States, 32,742 tons; sold to railway companies, 3,090,290 tons; used in making briquettes, 117,986 tons; used in making coke, 105,390 tons; used under colliery boilers, 137,739 tons; used by colliery railways, 7,523 tons; put to stock, 54,436 tons and put to waste 10,973 tons. These tonnages include coal lifted from stock and waste heaps, a figure which is not included in the yearly production total already given.

PRODUCTION OF COKE AND BRIQUETTES

Calendar Year	Coke (Tons)	Briquettes (Tons)
1930	.....	24,111
1931	.....	15,102
1932	2,183	13,582
1933	49,279	16,104
1934	59,703	15,906
1935	63,428	18,812
1936	65,239	21,015
1937	65,967	27,044
1938	68,692	39,239
1939	68,913	46,510
1940	70,753	66,127
1941	70,354	126,188
TOTALS	584,511	429,740
Increases and decreases in comparison with last year	—399	+60,061

Disposition of Electrical Power for Alberta Coal-mines in 1941.—Purchased electrical power used by Alberta coal-mines during the calendar year 1941, totalled 35,973,384 k.w. hours.

ELECTRICAL POWER USED FOR OPERATION OF ALBERTA COAL-MINES

Calendar Year	K.w.hrs.
1930	25,003,606
1931	16,918,625
1932	14,875,890
1933	17,611,959
1934	19,447,621
1935	23,111,373
1936	24,912,243
1937	25,483,749
1938	24,611,920
1939	27,575,926
1940	31,660,119
1941	35,973,384
TOTAL	287,186,415
Increase this year in comparison with last	4,313,265

Shale and Clay Mined

During the calendar year 1941 five shale pits were in operation. Production from same totalled 44,109 tons of shale and clay from which 13,593,050 bricks and 8,080 tons of hollow tile were made.

Calendar Year	Shale Mined (Tons)	Bricks Manufactured (Number)	Tiles Manufactured (Tons)
1930	67,517	22,007,045	.....
1931	23,855	7,091,080	2,825
1932	8,446	3,444,010	182
1933	3,234	1,221,060	.....
1934	13,561	4,398,032	1,171
1935	20,258	7,349,300	.....
1936	24,588	8,963,384	.....
1937	27,144	9,946,794	252
1938	19,929	7,609,314	1,640
1939	27,236	8,194,685	2,649
1940	35,614	9,885,326	5,712
1941	44,109	13,593,050	8,080
TOTALS	315,491	103,703,080	22,511
Increases this year in comparison with last	8,495	3,707,724	2,368

Mines Branch Annual Report.—Statistical information covering Alberta's coal-mining activities and production of shale and clay mined for the calendar year 1941 is given in complete detail in the published Annual Report of the Mines Branch, Department of Lands and Mines, for this period, which appears as a separate publication to this report.

Technical Division

Issue of Notifications (Land Patents).—The following comparative statement shows the number of notifications and acreage covered thereby for the fiscal years from 1930-31 to 1941-42, inclusive:—

NOTIFICATIONS ISSUED

Fiscal Year	Number of Notifications	Area, Acres
1930-31	23	3,019.710
1931-32	784	111,424.478
1932-33	1,260	178,887.233
1933-34	1,106	165,224.553
1934-35	2,006	324,611.398
1935-36	2,965	433,529.126
1936-37	2,231	325,615.379
1937-38	2,266	382,382.437
1938-39	2,874	517,435.896
1939-40	2,097	301,431.972
1940-41	2,058	295,649.119
1941-42	1,563	229,566.606
TOTALS	21,233	3,268,777.907
Decreases this year in comparison with last	495	66,082.513

Special Area Map.—Included in the Technical Division's report, in addition to the usual chart showing total area of lands patented, is a map which gives the present disposition of the former Tilley East Special Area.

The selection by the Dominion Government of about 30 townships of land in the Tilley East district, just north of Medicine Hat, for a bombing area, is dealt with in detail by the Technical Division. The area, thus chosen, is now known as the British Block.

The transaction, of course, involved the removal of all residents from the district, and their settlement elsewhere, which necessitated a considerable amount of organization work demanding detailed application to individual cases.

New Surveys.—Reference to new surveys carried out during the year are given, with explanation as to the circumstances of each case.

Mineral Taxation.—The placing of the Mineral Taxation Act of 1941 under the administration of the Technical Division was effected during the year, and methods in relationship to procedure are discussed.

Preservation of Records on Film.—The service which it is possible to secure by the preservation of records on film, and the tremendous saving in storage

space as a result of such operations are shown. Legislation having authorized the filming of documents by this process, a Recordak Junior has been installed in the office of the Division for the purpose of carrying out this work.

Photostat Machine.—The operations of this machine through the year reached a considerable total, both for this and for other departments. The service given is of great value, not only because it is a time saver, but also because of its facility for turning out documents to any size required.

New Maps.—New maps issued during the year included one of the Province of Alberta, which was published in October, 1941. It is drawn to a scale of 16 miles to the inch. Details covering surveyed areas, cities, towns, villages, post offices, railways, highways, etc., are given. A new strip map of Turner Valley, and also one of the area immediately north, were also published.

Detailed information covering other activities of the Division, carried out during the year, are dealt with in its report.

Radio Communication Service

In last year's Report emphasis was laid upon both the vital importance, and advancement made, regarding the radio communication service in its relationship to detection and suppression of forest fires in Alberta.

At the start of the year under review there were nine look-out stations in different parts of the province. A new one was constructed and came into operation about August 19, 1941 at Goose Mountain in section 32, township 66, range 14, west of the 5th meridian. These towers are equipped with standard radio equipment which were all in operation.

During this season all cars operated by timber inspectors were equipped with two-way radios. Including the Radio Superintendent's set, radio-equipped cars in use by the Forest Service at this time totalled sixteen. Results obtained by the operation of these mobile units were successful and encouraging. Mileage was reduced due to the fact that inspectors, in the course of their duties, were no longer compelled to return to their headquarters to receive requests for inspections.

The servicing of all portable equipment was attended to prior to the opening of the fire season. Fifty-seven portable sets were in operation in various parts of the province.

Enlargement of the Edmonton radio station became necessary during the year to take care of additions to staff and equipment. Larger scale maps covering only an area serviced by two or three towers were introduced for purposes of increased efficiency and accuracy in spotting exact locations of fires.

The purchase of supplies and equipment in these days of priorities becomes an ever increasing problem. The question of radio personnel is another one, as evidenced by the fact that over sixty per cent of this staff was new to the Forest Service at the start of the fire season. In spite of these considerations the equipment functioned most satisfactorily through the year, and maintenance and repair costs were low.

Staff

As expected, questions raised by the continual changes of staff and loss of experienced personnel leaving for Active Service were once more experienced throughout the year. This situation, without a doubt, will remain unchanged for some considerable time as a natural outcome of war, and particularly such a war as this.

The general question of administration under such conditions naturally presents many problems which must be solved. The work of the Department, under these new and perplexing difficulties, may quite justifiably be described as service on the home front.

To carry out, efficiently and well, the various activities related to public affairs, in spite of whatever obstacles have arisen, or may continue to arise, resolves itself into an individual and important duty for every member of the Department.

As civil servants we are the custodians of this great province. We are responsible for its protection today—and its preservation for tomorrow—in spite of every handicap the times may lay upon us. To those of us who cannot serve elsewhere, there is a service here in contributing now, through our work in this Department, to the great question of rehabilitation. Such contribution, well carried out, may definitely be classified as a war effort of real importance.

That this has been realized is apparent by the service which the staff of this Department has given under these difficult circumstances during the year, in return for which I would like once again to express my appreciation.

Individual detailed reports from the various Divisions of the Department follow.

Your obedient servant,

J. Harvie,
Deputy Minister.

Edmonton, January 22, 1943.

Active Service Enlistments

REPORT OF THE STATISTICIAN, J. L. IRWIN

Conditions of war on an ever-increasing and world-wide scale were evidenced during the year under review. Towards its close, the treacherous incident of Pearl Harbour not only brought the United States into the conflict, but also set ablaze the vast areas of the Pacific and Far East.

It was a tragedy which came close to home. Canada immediately entered the war zone, with an emphasis being laid, to an almost alarming extent, on her responsibility for increased production of natural resources, urgently needed as tools of war. Into this new picture, the agricultural and industrial areas of Alberta were quickly introduced.

During the year, enlistments for Active Service on the part of members of the departmental staff continued. Conditions covering such procedure, as stated last year, should perhaps be repeated. Enlistments for Active Service have, of course, been taking place in the departmental staff since the war began.

Civil servants who are on the permanent list are given indefinite leave of absence until the end of the war, or until they are discharged from whatever Branch of the Service with which they have been engaged, when they become entitled to re-employment in the same capacity as, or similar capacity to, that which existed prior to their enlistment.

Towards the close of 1942, enlistments in the Department had climbed to a total of sixty. Seven of this number were ladies, four having been taken on the strength of the Canadian Women's Army Corps, and three on that of the Women's Division of the R.C.A.F. The new list is as follows:

Name	*Date of Enlistment*	*Branch of Service*
Adin, R. G.	June 30, 1941	R.C.A.F.
Alexander, J. P.	July 1, 1940	R.C.A.F.
Anderson, C. G.	June 30, 1941	R.C.A.F.
Arcand, Romeo	July 1, 1940	R.C.A.F.
Barber, J. D.	January 8, 1942	R.C.A.F.
Barnard, E. D.	September 20, 1939	Royal Canadian Signallers
Baxter, R. D.	November 13, 1939	8th Field Ambulance, R.C.A.M.C.
Bennett, H. E.	May 16, 1942	R.C.A.F.
Bowen, R. L.	June 25, 1940	Calgary Highlanders
Brennan, W. R.	August 30, 1941	R.C.A.F.
Brent, Miss Pearl M.	October 28, 1941	C.W.A.C.
Brick, H. A.	May 31, 1941	R.C.A.F.
Browne, O.	October 25, 1939	Edmonton Regiment
Bryant, H. J. P.	February 1, 1941	Canadian Provost Corps
Campbell, J. G.	July 5, 1942	Edmonton Fusiliers, 3rd Battalion
Cragg, W. E.	October 10, 1941	Anti-Tank Battery
Craig, Ace	May 6, 1940	Royal Canadian Navy
Craig, Miss H. M.	June 2, 1942	Women's Division, R.C.A.F.
Dalphond, M. H.	June 22, 1940	R.C.A.F.
Fraser, C. M.	September 22, 1941	R.C.A.F.
Gauthier, L. P.	February 15, 1941	R.C.A.F.
Hereford, W. E.	August 18, 1941	R.C.A.F.
Hinman, G. W.	June 30, 1942	R.C.A.F.
Hutchison, J. A.	October 27, 1939	R.C.A.F.
Keats, F. J.	April 22, 1940	R.C.A.F.
Krause, R. F.	September 19, 1939	61st Battery, R.C.A.
Langford, E.	October 13, 1942	Basic Training Centre
Lashbrook, C. S. H.	April 22, 1942	R.C.A.F.
Lavoie, A. J.	June 1, 1940	South Alberta Regiment
Longson, Burgess	July 29, 1940	4th Petrol, R.C.A.S.C.
Macomber, Ralph	August 16, 1941	R.C.A.F.
Magneison, J. A.	May 28, 1941	R.C.A.F.
Maneluik, Miss L.	June 2, 1942	Women's Division, R.C.A.F.
Marr, F. B.	August 30, 1940	R.C.N.V.R.
Maynard, G. F.	April 11, 1942	R.C.A.F.
Miller, Miss E. M.	September 27, 1941	C.W.A.C.
McCardell, W. H.	March 13, 1940	R.C.A.F.
McKee, R. M.	January 3, 1942	R.C.A.F.

McKinnon, I. W.	May 2, 1940	R.C.A.F.
Newsome, R. T.	September 21, 1940	Royal Canadian Navy
Patrick, J. W.	March 7, 1942	R.C.A.F.
Peart, A.	September 2, 1939	Edmonton Regiment
Pinkerton, H.	December 11, 1941	R.C.A.F.
Raymond, W.	November 9, 1941	R.C.A.F.
Rees, D. B.	November 23, 1940	R.C.A.F.
Robertson, E. R.	May 7, 1941	Anti-Tank Battery
Russell, Miss I. A.	September 16, 1941	C.W.A.C.
Scott, C. W.	May 12, 1942	R.C.A.F.
Shaver, E. P.	January 31, 1940	Royal Canadian Navy
Shillabeer, W. E.	October 31, 1939	Royal Canadian Navy
Sloan, G.	May 28, 1941	R.C.A.F.
Smith, Miss E. V.	March 16, 1942	C.W.A.C.
Sparrow, F. D.	July 28, 1941	R.C.A.F.
Steffin, P. N.	May 16, 1942	R.C.A.F.
Strate, L. D.	May 20, 1941	R.C.A.S.C.
Sturrock, E. N.	January 18, 1942	R.C.A.S.C.
Waikle, L. L.	February 10, 1942	Veterans Guard of Canada
Walker, D. R.	August 15, 1940	R.C.A.F.
Wedenkamp, Miss M.L.	July 11, 1942	Women's Division, R.C.A.F.
Young, D. J.	September 7, 1940	R.C.A.F.

Mention was made in last year's Report of the noticeable advancement which Wing Commander J. A. Hutchison and Lieutenant Commander E. P. Shaver, both of this Department, had achieved in their respective services.

Additional distinction has now come to Wing Commander Hutchison by the appearance of his name in the New Year's Honours List as a recipient of the O.B.E. The award, it is understood, was made as a result of extremely valuable service having been given in his administrative duties as Commanding Officer of No. 4 Initial Training School, R.C.A.F., in Edmonton. On March 3, 1943, he was again promoted, this time to rank of Group Captain. Shortly after this announcement was made, Group Captain J. A. Hutchison, O.B.E. was reported as having arrived overseas to take command of an operational unit.

The advancement of J. P. Alexander of this Department, who enlisted in the R.C.A.F. on July 1, 1940, should also be recorded. Mr. Alexander, on entering the Service, was given a commission with rank of Flying Officer. Promotions have followed and he is now a Squadron Leader.

Mention was also made in the last Report regarding the splendid record of Flight Lieutenant D. S. Florence, D.F.C., the official citation covering his decoration having been given. Flight Lieutenant Florence, though not a member of the Department staff at the time of his enlistment, had, nevertheless, been a member for a period of years at an earlier date.

Liutenant F. B. Marr, R.C.N.V.R., whose name appears on the Department's Active Service List, was reported on March 13, 1943, to have been one of the officers of the Canadian Corvette, H.M.C.S. Regina, when she engaged and sank an Italian submarine in the Mediterranean—the third enemy U-boat sunk by the Canadian Navy in those waters within recent months. The Regina captured over twenty members of the submarine's crew. Following this encounter, Lieutenant Marr returned to Canada and arrived in Edmonton on leave.

The sad news covering D. J. Young and J. G. Rogers, formerly members of this Department and later of the R.C.A.F., was given in the last Annual Report.

The official report from the Royal Canadian Air Force, relative to these two, reads as follows:—

> "R61155 Sergeant D. J. Young lost his life on July 22nd, 1941, during flying operations near Mountain View, Ontario.
> Pilot Officer J. G. Rogers (J15013) was reported missing after air operations on August 20th, 1941. His death has been presumed for official purposes as having occurred on that date."

This casualty list is now most regrettably added to by the name of F. W. G. Faunt, who resigned from the Department on June 14th, 1939, and later joined the R.C.A.F.

The official R.C.A.F. statement relative to this former member of the Department is given as follows:

> "Pilot Officer F. W. G. Faunt (J8944) lost his life during air operations near Tunbridge Wells, Kent, England, on May 25th, 1942. He enlisted in the Royal Canadian Air Force on February 24th, 1941."

With reference to the report last year that Sergeant M. H. Dalphond, R.C.A.F., was officially reported missing on July 24, 1941, after air operations over enemy territory, and the later official report that he was interned in Vichy, France, and was known to be safe and well, further information may now be given.

It appears that Sergeant Dalphond made no less than three escapes from internment camps in France. The first two ended in his recapture, but the third was a success. By disguising himself as a peasant, he managed by bicycle and on foot, mostly on foot, to cross the Pyreneean frontier into Spain and eventually to arrive at Gibraltar. By the end of October, 1942, he was back in Edmonton.

This courageous and dramatic adventure followed his bailing out of a crippled bomber over France at a height of 15,000 feet. Pulling the rip cord of his parachute he discovered that nothing happened. By dragging out some of the silk he managed at 8,000 feet to release enough so that the wind could catch it and landed safely, though wounded with a bullet in his back. The remainder of the crippled bomber crew were not so fortunate. Two were reported killed and the others presumably were captured. A later report stated that one of them, a Wing Commander, subsequently escaped.

On February 6th, 1943, an official announcement was published from London to the effect that the Distinguished Flying Medal had been awarded to Sergeant Airgunner Melville H. Dalphond, of Morinville and Edmonton, for "gallantry and determination." This official recognition of the service he has given for his country is a very high honour, of which, amongst others, the Department has every reason to be proud.

The list of sixty strong will unquestionably be added to from time to time. Whilst the news from the various fronts has changed definitely for the better, it is well to remember that no man can say how long the war may yet go on.

The favourable news means a change for the United Nations at last—from the defensive to the offensive. An offensive, however, brings heavy casualties, and casualties demand reinforcements—in ever increasing numbers. The reserves will be called upon to supply them, following which, the history of the last war may be repeated, and some of the restrictions, which to so many have up to now stood in the way of enlistment, may be drastically removed. Should this materialize, and it may quite easily do so, it will mean a new drain on the ranks of industry, labour and staffs of governments. It is an eventuality which, because it may happen, should be anticipated.

To the former civil servants of this Department, now serving their country on land, sea and in the air, the sincerest wishes of their old friends in the Department are extended for their preservation, and for their safe return.

Provincial and School Lands Administration

REPORT OF THE DIRECTOR OF LANDS, V. A. WOOD

Provincial Lands

The Federal Government's crop curtailment policy was continued during the year under review, and this Department again co-operated to the fullest extent by not accepting applications for cultivation leases except in cases where at least one-third of the total area had already been broken.

The Department was entitled to, and made application for, participation in the crop reduction bonus for all leases issued on provincial and school lands, and received a total payment for the same up to the end of the fiscal year amounting to $14,476.10.

In central and northern Alberta, and particularly in the Peace River district, the grades of grain suffered considerably due to continued rain and cold weather between cutting and threshing. The average wheat yield for the province was 14 bushels per acre, 2 bushels per acre less than the previous ten year average. The wheat production for Alberta was approximately 25% less than the previous ten years.

The quota system of wheat deliveries was again in effect, but was much more satisfactory than last year. The quota raised rapidly and was finally removed altogether on December 2nd.

The Canadian Wheat Board remained in operation with a pegged price of 70c per bushel for wheat, basis No. 1 Northern at Fort William.

During the fiscal year the preparing of leases and other documents for provincial lands within the Special Areas, also the collection of payments and crop shares, became a function of the Lands Division. The transactions carried out by this Division for the Special Areas are not enumerated in this report, but will be included, however, in future reports.

In order to assist settlers, the agricultural lease regulations were amended whereby a husband and wife, each having obtained an agricultural lease separated by a distance not greater than three miles, may complete the residence requirements by having their permanent residence on either of the agricultural leases.

On the first of April the collection of registration fees in connection with notifications for title became a function of this Division. The registration fee is remitted to the Registrar, Land Titles Office, with a letter of notification.

Land agencies were maintained at Calgary and Peace River. The Lethbridge agency was discontinued and a sub-agency was opened instead. Sub-agencies were also maintained at Bonnyville, Lac La Biche, Athabaska, Hines Creek and Grande Prairie. The Medicine Hat sub-agency was discontinued.

The following is a summary of the work performed by the field inspection staff:—

Requests for inspections outstanding as at April 1, 1941	804
Reports called for from April 1, 1941 to March 31, 1942	2,040
Reports received from April 1, 1941 to March 31, 1942	2,084
Reports outstanding, March 31, 1942	760

This work was carried on by 7 field inspectors.

The total revenue received for the fiscal year in connection with the administration of provincial lands amounted to $145,981.43, as compared with $125,544.35 during the previous year, showing an increase of $20,437.08.

Details pertaining to this revenue may be found in the Accounting Division's section of this Report.

The filing systems of the different branches of the Department were amalgamated during the year, through which all letters addressed to the Department were received, and from which all outgoing letters were dispatched. During the fiscal year 156,664 letters were received, and 225,301 letters were dispatched. 3,464 new files were made, bringing the total numbr of files in use up to 155,699.

The stencil cutting was transferred to the Technical Division during the fiscal year and the translations for other Departments were discontinued.

The following statement will give some idea of the transactions of this Division during the fiscal year:—

Entries cancelled	794
Applications for patent received	1,452
Notifications for title issued	1,369
Applications for patent on hand as at March 31, 1941	1,893
Sales granted	79
Agricultural leases in operation as at March 31, 1941	223
Applications received	280
Leases issued	200
Leases cancelled	134
Active leases as at March 31, 1942	289

During the year 265 soil reports were called for, and 243 were received, leaving a balance outstanding of 133 as at March 31, 1942.

Assignments registered	122	
Provincial Lands Cultivation and Grazing Leases:		
Leases in force as at March 21, 1941		422
Leases issued during fiscal year		63
Renewal six year leases issued		40
Leases transferred from Tilley East Area		34
		559
Leases cancelled during fiscal year		97
Leases in force as at March 31, 1942		462
Accrued Area Leases:		
Leases in force as at March 31, 1941		414
Leases issued during fiscal year		68
Leases reinstated		2
		484
Leases cancelled		37
Leases in force as at March 31, 1942		447
Mineral Surface Leases:		
Leases in force to end of March, 1941		19
Leases issued during fiscal year		2
		21
Leases cancelled during fiscal year		4
Leases in force as at March 31, 1942		17
Fur Farming Leases:		
Leases in force as at March 31, 1941		9
Leases issued during fiscal year		2
		11
Leases cancelled during fiscal year		2
Leases in force as at March 31, 1942		9
Townsite Leases:		
Leases in force as at March 31, 1941		15
Leases issued during fiscal year		0
		15
Leases cancelled during fiscal year		1
Leases in force as at March 31, 1942		14
Licences of Occupation:		
Leases in force as at March 31, 1941		92
Leases issued during fiscal year		15
		107

Leases cancelled during fiscal years	6
Leases in force as at March 31, 1942	101
Miscellaneous Leases: (Recreational, Irrigation Schemes, Church Sites, Exhibition Sites, Wharf Sites, etc.):	
Leases in force as at March 31, 1941	101
Leases issued during fiscal year	10
	111
Leases cancelled during fiscal year	5
Leases in force as at March 31, 1942	106
Grazing permits issued	1,398
Cultivation permits issued	60
Hay permits issued	1,183
Tons of hay cut	8,600
Hay seizures (2½ tons)	2

The following statement gives the particulars concerning transactions in connection with long term grazing leases:

	Number	Acreage
Leases in existence, April 1, 1941	1,433	1,996,034.85
Leases issued	141	344,399.10
Leases cancelled	91	266,115.02
Leases reinstated	8	3,672.34
Leases transferred to Tilley East Area	154	294,046.10
Area added to existing leases	.....	892.04
Area withdrawn from existing leases	.....	14,541.56

On March 31, 1942, there were in existence 1,645 long term leases, comprising an area of 2,358,387.85 acres.

SUMMARY

	Number	Area
Dominion Leases	608	810,400.26
Provincial Leases	1,037	1,547,987.59

School Lands

Order in Council, No. 436-37, appointing a Board to inquire into applications for compromise or adjustments in connection with the outstanding school lands' sales, was rescinded and a new Board was appointed under Order in Council No. 1772-41 on December 10, 1941, consisting of Mr. V. A. Wood, Director of Lands, Mr. J. W. Patrick, Acting Accountant and Mr. David Nicol, Clerk, Department of Lands and Mines.

June 30th was set as a shut-off date for application for the reinstatement of school lands' sales, cancelled between September 30, 1930 and December 31, 1936. In view of the fact, however, that some purchasers had not been notified, all parties eligible for reinstatement were notified and given a period of sixty days to make application for reinstatement.

A total of 394 applications for reinstatement of school lands' sales was received during the fiscal year. Two parties withdrew their applications. Six sales were reinstated. A total of 150 has been found ineligible for reinstatement, and the remainder have not as yet been dealt with.

Five Board meeting were held during the fiscal year and 40 cases were dealt with, in connection with which reductions were made as follows: Principal, $114,773.57; Interest, $95,616.72.

This makes a grand total of 2,399 cases dealt with to the end of the fiscal year, resulting in a total reduction being granted in the sum of $2,745,597.87 on account of principal, and $2,246,124.27 on account of interest.

There were 3 public auction sales of school lands during the year. At these sales, 845.3 acres were sold at a total price of $5,821.17. A total of 84 sales was cancelled during the year, 29 by order in council and 55 by deeds of surrender. There were approximately 1,800 active school lands' sales as at March 31, 1942.

The total revenue collected from school lands was $495,931.13, as compared with $414,584.20 for the previous year, being an increase of $81,346.93. Of

the total amount collected, $226,747.10 was paid on account of principal and interest as compared with $147,364.55 for the previous year, being an increase of $79,382.55. A total of $269,184.03 was collected from rentals, royalties, etc., as compared with $267,271.14 for the previous year, an increase of $1,912.89. The increase in revenue over the previous year is to some extent due to the wheat acreage reduction bonus paid to farmrs, and to the increased retail prices of livestock and grain.

Cultivation and Grazing Leases:

Number of leases active as at March 31, 1941	1,655
Ten year cultivation and grazing leases issued	333
Area—62,898.24 acres	
Six year cultivation and grazing leases issued	21
Area—3,864 acres	
Number of cultivation and grazing leases cancelled	79
Area—14,921.76 acres	
Number of leases active as at the end of the fiscal year	1,930
School lands' assignments registered	76
School lands' grazing permits issued	2,072
Cultivation permits	35
Hay permits	304
Number of tons of hay cut	2,550

Hay seizures, 3—consisting of 19 tons.

In the interests of centralization, the school lands' timber was transferred to the Forestry Division.

Forestry

REPORT OF THE DIRECTOR OF FORESTRY, T. F. BLEFGEN

From the time war was declared in 1939, there has been a growing increase in the demand for shipments of lumber from the Dominion for building purposes overseas to restore havoc wrought by the bombing of Britain. Demands for lumber to crate implements of war and for use as containers for munitions and parts of planes, tanks, etc., have also been persistently increasing. The demand is especially for spruce. The texture of this wood lends itself very well for these purposes, especially for crating and containers for war materials to be shipped overseas from different parts of Canada and the United States. As a result the need for spruce lumber has been constantly on the increase.

In addition to this demand the call for products of the forest required for the building of barracks and military encampments, together with the erection of internment camps for the sheltering of many thousand of prisoners of war, has been very heavy.

The noticeable increase in passenger travel, the continual transportation of troops and the tremendous increase in freight which the railways have been called upon to handle have made for unprecedented expenditures in the maintenance of the Dominion's railways.

This all time peak traffic load has reflected in much larger requirements for cross ties. As more coal is required by the railways to move this heavy traffic, the demand for mine props and lower grade lumber for coal doors has also been very much increased.

Conditions directly attributable to the Dominion's war effort, therefore, have placed very heavy demands on the forest resources of the country.

The harvesting of the forest crop of Alberta has increased by nearly three hundred per cent over peacetime requirements. This increase would be even greater if it were not for the shortage of experienced woodsmen. The demand for material as it exists cannot be met owing to the shortage of labour. This shortage of experienced woodsmen has been brought about by enlistments and the drafting of men for the armed forces, and also by the migration of a considerable number of men, who usually earn their livelihood in the forests and saw-mills, to industrial areas, where jobs in war plants and other related work have proved more attractive, the inducement being higher wages and more steady employment.

It is realized by those conversant with the forest resources of this province that the present rate of depletion cannot be continued indefinitely, or even for a great number of years. With victory as the sole present objective, however, no restriction in the cutting of timber can as yet be made.

The great demand for forest products and the high price being paid have attracted a number of inexperienced would-be timber operators to the business. The majority of these seem to think that all they require is a small amount of capital and willingness to work in order to make a success of the venture, and reap great profits. They do not seem to consider that lack of experience, lack of ability to handle men, to lay out roads, to fell their timber and to take it to the mill to the best advantage are handicaps to success, nor that economical management is a paramount requisite for such success. The lack of these requisites, commonly known as experience, far out-weigh their one asset in willingness to work.

The great number of applications from inexperienced operators has increased the work of the Department tremendously, as great difficulty is encountered in securing the required records, in the restriction of operations to areas allotted and to the enforcement of the timber regulations generally.

In the face of this definite increased demand for products of the forest, and the great difficulty in assisting inexperienced operators in starting, the majority of the Forestry staff have put forth Herculean efforts in keeping up their work as well as possible, and are to be heartily commended as a result. They are to be especially commended in such times as these when every hand is urgently required to help with the view to achieving the desired result of keeping this country free of Europe's tyrants, who are endeavouring to set back civilization by hundreds of years and bring about slavery.

The part the forest resources of the province is playing in the march toward victory can be readily seen. It is admittedly very difficult for legislators to look into the distant future. They have had ample opportunity, however, to obtain a proper appraisal of the value of Alberta's forests, not only for their watershed protection and tempering of the winds and climate, but also for their value in assisting to maintain the many demands of the Empire's main granary, as well as its chief arsenal.

In order to continue to meet these demands and to provide for rehabilitation after the war, a long distance view of the province's forest resources must be taken, and more assistance and equipment must be provided in order to preserve these resources, which are so vital to the country's industrial welfare.

Forest Protection

In previous annual reports emphasis has been laid on the increasing fire hazard in the northern part of the province due to the extension of settlement and also due to the fact that the staff in this huge area is extremely small. It is by no means in keeping with the resources which exist therein, and the area each ranger is forced to cover is far greater than it is humanly possible for one man to accomplish and at the same time give to the forest areas the protection so badly needed.

During the year under review the ranger staff remained approximately the same as that of the previous year. Fortunately the fire hazard in most districts was not as great during the summer of 1941 as in the previous summer, owing to occasional showers and some heavy rains at opportune times. In the Peace River, Grande Prairie and Fort Vermilion districts the effect of the privilege of homesteading in outlying districts having come to an end is beginning to show materially, firstly by reason of the fact that promiscuous settlement on land is not allowed in areas where there are timber stands, and secondly that the area applied for must be inspected before an agricultural or cultivation lease is issued. This has a very decided tendency to eliminate a great number of the settlements in outlying districts on or adjacent to timber areas where only a meagre existence could be eked out.

The practice, carried out in the past, of an individual homesteader locating in a certain area, and in order to obtain neighbours, a school and other community life, deliberately setting fires in order to clear additional land so that more settlers would come in, has, it is hoped, passed for all time.

The Prairie and Forest Fires Act, assented to April 8th, 1941, is filling a long felt want, and the enforcement of this Act, in which splendid co-operation has been given by the Royal Canadian Mounted Police, has certainly had a very retarding effect on fires being started.

Look-out tower, Saskatoon Mountain, Grande Prairie District

Prosecutions under the Act have disclosed the contention made in former reports that there is a very definite lack of co-operation regarding fire prevention in sections populated by Central Europeans.

Fire Season.—During the winter of 1940-41 the snow-fall along the east slope of the Rocky Mountains was much below normal, and approximately the same as had fallen the year before. The only heavy snow-fall received was in the south-western part of the Crowsnest-Bow River Forest. In the Grande Prairie and Peace River country the weather was extremely moderate, with a medium snow-fall, somewhat below normal. Spring arrived early throughout the province. With heavy winds the snow disappeared rapidly.

There was every appearance of an early and extremely hazardous fire season. Heavy rains in the southern and northern part of the province, however, occurred. The situation was not so favourable though in the central section. It was possible to extinguish or control the usual settlers' fires that occurred in the area north and east of Rocky Mountain House and south and west of Edmonton, until an extremely high wind occurred on April 26th. This unfortunately drove small clearing fires entirely out of control, and one of the worst fire periods in the history of this section of the country was experienced.

Headquarters at Grande Prairie, showing poles for radio aerials

This period lasted for nearly a month, during which time all personnel of the service in the district and numerous crews of fire-fighters were engaged day and night in an endeavour to save settlements, timber areas and even life. One fatality occurred. The life of a watchman of one of the saw-mills was lost. Greatly regretted, however, as was this tragedy, there was reason for extreme gratitude that as a result of the diligence of the staff and the co-operation of the general public, the loss of life was not much greater.

Immediately after the fire in this area was brought under control, another very serious fire situation developed in the Athabaska Valley in the vicinity of Pass Creek and the Old Man River, which destroyed a great deal of timber. The extinguishing of this fire necessitated the expenditure of large sums of money.

One of the largest fires in that area, the Chickadee Slash Fire, was reported under control when only of medium size. A prolonged dry spell with high winds, however, fanned this fire out of control and before it was finally extinguished late in July, millions of feet of standing timber were destroyed. This break-out is attributable to inexperience on the part of the ranger who was handling the fire. It was not in a difficult location, but lack of experience led him to believe it was safe when surrounded by trenches.

Inexperience is one of the factors with which the Forest Service has been forced to contend since the outbreak of war, due to the fact that no one subject to military call may be employed, and a number of the men who have been in the Department for years, and who are experienced in fire fighting, have gone on active service. The result is the employment of less experienced and less competent men. This condition must continue for the duration of the war, and the best results in fire suppression efforts, therefore, cannot be expected.

The late summer was very favourable to forest protection and occasional rains occurred, with the result that the fall fire hazard did not materialize to any great extent. Although there was a moderate hazard until winter set in during the latter part of November, the fall hazard never became great in any section of the province.

At the end of the fire season the forest cover was in the best condition with regard to moisture that it has been in for a number of years. Muskegs were

partly filled and small creeks that had been dry in the fall of the year for the past several years had running water in them. Unless a hot dry season with strong winds is experienced the danger of a high fire hazard in the spring of 1942 will not be anticipated.

Fire Prevention.—One of the first duties of the Forest Service is the prevention of fires. Success in this work needless to say is the determining factor in the requirements of fire suppression.

Fires from natural causes are not readily subject to preventive control, but fires caused by man, which represent the greatest percentage in the province, year by year, are controllable.

Forest fire "crowning", Rocky Mountain House district

Education of the general public regarding the dangers of forest fire is a most important preventive measure. From time to time publicity is obtained through newspaper articles and radio broadcasts, which warn citizens of the hazardous conditions under which forests exist, and which issue the precautions necessary to be taken to insure safety. Splendid co-operation with the press and with the different radio stations throughout the province has been experienced, leaving nothing to be desired in this respect. Publicity of this nature, however, has not been as intensive as might be desired. This has been due to the lack of time on the part of the Forestry personnel for the preparation of articles and radio addresses.

To offset this disadvantage, a very efficient form of publicity has been carried out continuously by direct contact between the field staff and persons using the forest areas for recreational and commercial purposes. In the Northern Alberta Forest District, where ranger districts are much larger, the personal contact is not as readily made, and, as a result, man caused fires in this area have been numerous.

Another hazard to be contended with, and which has been cited in previous reports, is that of trappers burning the grass along lakes and sloughs in order to more readily find muskrat runs; to which may be added the problem of winter campfires which are left improperly extinguished. Better success, however, is now anticipated in outlying districts when registered traplines are inaugurated in the areas outside of forest reserves.

BURNING PERMITS ISSUED, PROVINCE OF ALBERTA, 1941

By the Forest Services:		
Cypress Hills	.....	
Crowsnest-Bow River	59	
Clearwater	159	
Brazeau-Athabaska	8	
By the Staff of the Forest Reserves		226
Westlock	66	
Breton	198	
Carrot Creek	46	
Calling Lake	51	
Lace La Biche	28	
Slave Lake	248	
Peace River	188	
Grande Prairie	103	
By the Staff of the Northern Alberta Forest District		928
By Outside Agencies:		
Honorary Fire Guardians	1,455	
Fire Guardians in Municipal Districts	169	
Royal Canadian Mounted Police	968	
Sub-total		2,592
TOTAL		3,746

PROSECUTIONS AND CONVICTIONS, PRAIRIE FIRES ACT, 1941

	Instituted by Forest Service	Instituted by other Agencies	Totals
Number of prosecutions	38	88	126
Number of convictions	34	71	105

Fire Detection.—It is a pleasure to be able to report that progress is being made in the provision for fire detection throughout the Northern Alberta Forest District. During the season under review the Goose Mountain look-out was constructed on section 32, township 66, range 14, west of the 5th meridian, and similar equipment to that used in other look-out towers was installed. This adds one more to the proposed system that is being built. Although progress is slow, it is expected, if continuance of the work is allowed, to eventually have at least the most hazardous portions of the province covered by look-outs.

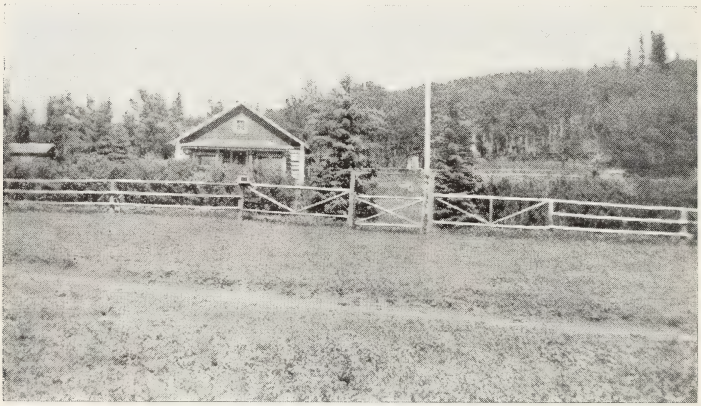
In addition to the completion of the Goose Mountain look-out, all cars operated by timber inspectors are equipped with two-way radio communication, with S.P.F. sets, which were introduced into the service several years ago, and which have proved so successful in the United States Forest Service.

The total number of radio equipped cars now operated by the Alberta Forest Service is sixteen, and although there are times when transmission and reception are not of the best, they have nevertheless been found to be very serviceable and greatly assist in speedier notification of fires as well as assisting in the expediting of other work.

During the fire season under review the resultant smoke from the large fires in this province, as well as from fires in Saskatchewan brought in by the north-

east winds, and from British Columbia by west winds, made determination as to exact locality very difficult, and the visibility from a number of look-outs was cut at different times to a minimum. This resulted in some of the larger fires gaining considerable headway before it was possible to report them, and in some cases their discovery was made by ground patrols before they were visible to the lookout men, in spite of the size when first discovered.

The lack of visibility, by reason of smoke haze, is one of the factors with which all fire fighting organizations are forced to contend, and as yet no remedy has been found, other than constant vigilance. There is generally some period, however, during the day, either in the early morning or late evening, when observation improves.



Rangerstation at Jumping Pound, Bow River Forest

Fire Suppression.—The prolonged dry weather, which started during the first week in April and continued to the middle of July, brought about one of the highest fire hazards which has been experienced in the district from south of Rocky Mountain House to the Athabaska River valley.

Although the season throughout the province was unusually long, occasional showers occurred in other parts, in which the fire hazard did not at any time reach an extreme high.

It is desirable to point out once again that on the east slope of the Rocky Mountains, especially in the forest reserves, occurrences and losses from fire were held to a minimum, accentuating the fact that in the smaller districts, vigilance and energy of the staff can produce very effective fire control.

Emphasis is once more laid on the fact that the continued good records in the Rocky Mountain and Cyprus Hills forest reserves are in a great part attributable to the splendid co-operation, and care with fire, given by those using the reserves for camping and recreational purposes.

During the fire season of 1941, 445 fires were dealt with, 304 being in the large or C and D classes, 81 in class B and the remainder, under 10 acres in extent, in class A.

COMPARISON OF FIRE LOSSES BY PERCENTAGE

	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941
Campers	23.7	52.8	38.9	35.4	42.3	38.3	35.9	27.4	28.8	26.0	20.9
Smokers	3.2	5.3	13.5	11.7	9.3	9.7	4.5	3.6	5.0	4.8	2.2
Settlers	21.9	17.1	17.4	17.9	8.2	11.7	20.7	14.6	14.8	12.2	22.7
Railway	6.6	4.5	2.8	5.0	10.3	4.0	9.3	4.2	4.6	6.7	7.6
Lightning	.6	2.6	5.2	7.5	1.0	14.1	2.2	2.3	4.0	2.8	1.6
Industrial Operations	1.9	1.1	1.7	4.2	1.0	3.2	.8	1.4	1.4	.6	1.4
Incendiary	15.1	8.2	11.8	11.2	22.7	10.1	13.5	14.6	9.8	8.9	10.8
Public Works	1.4	.5	1.4	1.3	1.0	.4	.3	.8	.6	....	.2
Unclassified	1.5	1.6	....	2.5	2.1	2.0	7.2	9.0	13.4	16.9	8.8
Unknown	24.1	6.3	7.3	3.3	2.1	6.5	5.6	22.1	17.6	21.1	23.8

RAILWAY FIRE LOSSES, CALENDAR YEAR, 1941

This statement deals only with fires burning on forested territory under the supervision of the Alberta Forest Service, and which started within 300 feet of the centre line of the railway right of way.

Causes and number of fires:

Railway causes—Locomotives	20	
Employees	5	
Sub-total		25
Other causes—Campers and Travellers	1	
Settlers	11	
Unknown	10	
Unclassified	2	
Sub-total		24
TOTAL		49

Number of acres burned:

Slashing or old burn	.....
Timber land	.....
Young growth	3,542.5
Non-forested	1,341.5
TOTAL	4,884.0

Loss:

Timber	.....
Young growth	$15,951.25
Forest products	1,783.75
Other property	4.50
TOTAL	$17,739.50

ANNUAL STATEMENT OF FIRES BY CAUSES, MONTHLY DISTRIBUTION, ETC., WITHIN AND OUTSIDE FOREST RESERVES, ALBERTA—CALENDAR YEAR, 1941

Cause	Number					P.C.	Damage	Area, Acres	Monthly Distribution												Fires Inside Provincial Forests		Fires Outside Provincial Forests	
	A	B	C	D	Tot.				January	February	March	April	May	June	July	August	September	October	November	December	No.	Area, Acres	No.	Area, Acres
Camp-fires	23	13	32	26	94	21.1	$ 551,948.00	394,868	2	1	2	25	27	20	4	3	6	1	2	1	7	220	87	394,648
Smokers	2	5	3	1	11	2.5	11,877.75	5,842	....	1	....	4	1	3	2	....	....	....	....	....	2	11	9	5,831
Settlers	2	18	40	41	101	22.7	220,903.50	194,157½	....	....	1	59	27	8	5	....	....	1	....	....	....	.....	101	194,157½
Railways	10	14	10	1	35	7.9	15,943.75	5,089	1	....	....	11	12	8	2	....	....	1	....	....	5	4,020	30	1,069
Lightning	4	2	....	1	7	1.6	720.25	688	....	....	....	....	....	....	6	1	....	....	....	....	6	8	1	680
Industrial Operations	1	2	....	3	6	1.3	14,913.00	8,744¾	....	....	....	3	2	1	....	....	....	....	....	....	....	.....	6	8,744¾
Incendiary	4	6	16	21	47	10.6	181,780.37	85,993¼	....	....	....	18	22	5	....	....	2	....	....	....	....	.....	47	85,993
Public Works	....	....	1	....	1	.2	.....	45	....	....	....	1	....	....	....	....	....	....	....	....	....	.....	1	45
Unclassified	4	8	8	18	38	8.5	126,992.85	76,286	....	....	1	7	14	8	4	3	1	....	....	....	....	.....	38	76,286
Unknown	10	13	33	49	105	23.6	925,899.96	583,711	....	....	....	46	35	16	4	2	2	....	....	....	2	238	103	583,473
TOTALS	60	81	143	161	445	100.0	$2,050,979.43	1,355,424½	3	2	4	174	140	69	27	9	11	3	2	1	22	4,497	423	1,350,927¼
Per cent	13.5	18.2	32.1	36.2					.7	.4	.9	39.1	31.5	15.5	6.1	2.0	2.5	.7	.4	.2	4.9		95.1	

ANNUAL SUMMARY OF FOREST FIRE LOSSES, ALBERTA—CALENDAR YEAR, 1941

Number of Fires; Lands Affected; Loss (Timber — Salvable)

FIRE CAUSES	Number of Fires, Class A	Class B	Class C	Class D	Total	Ownership: Public, Acres	Ownership: Private, Acres	Area: Total, Acres	Condition: Merchantable Timber, Acres	Condition: Cut-over Timber, Acres	Condition: Young Growth, Acres	Condition: Not Forested, Acres	Salvable: Saw-timber, M.ft.B.M.	Salvable: Other, Cords	Salvable: Depreciation
FIRES WITHIN FOREST RESERVES															
Campers	5	...	2	...	7	220	...	220	10	...	20	190	...	...	...
Smokers	1	1	...	...	2	11	...	11	¼	...	¾	10	...	...	...
Settlers	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Railways	3	...	1	1	5	4,020	...	4,020	495	...	3,525	...	...	3,000	$1,500.00
Lightning	4	2	...	...	6	8	...	8	...	...	8	...	...	...	...
Incendiary	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Industrial Operations	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Unclassified	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Unknown	...	1	1	...	2	238	...	238	122¼	...	55¾	60	...	...	...
TOTALS	13	4	4	1	22	4,497	...	4,497	627½	...	3,609½	260	...	3,000	$1,500.00
FIRES OUTSIDE FOREST RESERVES															
Campers	16	14	30	26	86	392,558	2,090	394,648	103,952½	6,488	138,599	145,608½	965	14,470	$ 1,015.00
Smokers	1	3	3	1	8	4,529	1,302	5,831	4,615	...	608	608	...	...	...
Settlers	2	18	40	41	101	163,051	31,106½	194,157½	23,023	11,885	61,012	98,237½	13,948	49,310	35,010.50
Railways	6	14	9	...	29	942½	126½	1,069	...	...	193½	875½	...	...	...
Lightning	...	...	...	1	1	680	...	680	160	...	420	100	...	...	...
Incendiary	4	6	16	22	48	80,645¼	5,348	85,993¼	22,467	1,974	45,226¼	16,326	7,575	34,700	12,650.00
Industrial Operations	1	2	...	3	6	8,741	3¾	8,744¾	1,470¼	1,733½	4,540	1,001	2,561	...	500.00
Unclassified	5	6	9	19	39	75,916	370	76,286	14,692	4,700	34,235½	22,658½	4,361	...	...
Unknown	12	14	31	47	104	570,424	13,049	583,473	201,630	7,685	200,358	173,800	14,300	20,000	8,800.00
Public Works	...	...	1	...	1	45	...	45	...	...	45	...	...	...	...
TOTALS	47	77	139	160	423	1,297,531¾	53,395¾	1,350,927½	372,009¾	34,465½	485,237¼	459,215	43,710	118,480	$ 57,975.50
FIRES WITHIN AND WITHOUT FOREST RESERVES															
Campers	21	14	32	26	93	392,778	2,090	394,868	103,962½	6,488	138,619	145,798½	965	14,470	$ 1,015.00
Smokers	2	4	3	1	10	4,540	1,302	5,842	4,615¼	...	608¾	618	...	...	...
Settlers	2	18	40	41	101	163,051	31,106½	194,157½	23,023	11,885	61,012	98,237½	13,948	49,310	35,010.50
Railways	9	14	10	1	34	4,962½	126½	5,089	495	...	3,718½	875½	...	3,000	1,500.00
Lightning	4	2	...	1	7	688	...	688	160	...	428	100	...	...	...
Incendiary	4	6	16	22	48	80,645¼	5,348	85,993¼	22,467	1,974	45,226¼	16,326	7,575	34,700	12,650.00
Industrial Operations	1	2	...	3	6	8,741	3¾	8,744¾	1,470¼	1,733½	4,540	1,001	2,561	...	500.00
Unclassified	5	6	9	19	39	75,916	370	76,286	14,692	4,700	34,235½	22,658½	4,361	...	...
Unknown	12	15	32	47	106	570,662	13,049	583,711	201,752¼	7,685	200,413¾	173,860	14,300	20,000	8,800.00
Public Works	...	...	1	...	1	45	...	45	...	...	45	...	...	...	...
TOTALS	60	81	143	161	445	1,302,028¾	53,395¾	1,355,424½	372,637¼	34,465½	488,846¾	459,475	43,710	121,480	$ 59,475.50
SUMMARY BY DIVISIONS															
N.A.F.D.*	38	70	133	150	391	1,229,619½	43,164	1,272,783½	366,490	24,475½	466,835	414,983	39,459	75,480	$ 28,863.00
Clearwater	6	4	5	8	23	62,053¼	9,591¾	71,645	5,443¼	9,980	17,951¾	38,270	4,251	43,000	29,112.50
Crowsnest-Bow	7	1	1	...	9	50	...	50	...	...	20	30	...	...	...
Brazeau-Athabaska	9	6	4	3	22	10,306	640	10,946	704	10	4,040	6,192	...	3,000	1,500.00
Cypress Hills	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
TOTALS	60	81	143	161	445	1,302,028¾	53,395¾	1,355,424½	372,637¼	34,465½	488,846¾	459,475	43,710	121,480	$ 59,475.50

Loss (Timber — Unsalvable; Totals); Suppression Costs; Burning Permits

FIRE CAUSES	Unsalvable: Saw-timber, M.ft.B.M.	Unsalvable: Other, Cords	Unsalvable: Loss	Loss of Timber	Loss of Young Growth	Loss of Other Property	Total Loss	Suppression Costs: Ranger Service	Other Expenditures	Total	Burning Permits Issued
FIRES WITHIN FOREST RESERVES											
Campers	...	10	$ 3.75	$ 3.75	$ 50.00	...	$ 53.75	$ 101.03	$ 86.15	$ 187.18	...
Smokers	...	4	3.00	3.00	3.75	...	6.75	73.37	6.65	80.02	...
Settlers	...	...	...	...	...	...	...	...	...	...	...
Railways	225	2,000	1,950.00	3,450.00	11,625.00	...	15,075.00	354.76	1,576.43	1,931.19	...
Lightning	...	2	1.50	1.50	18.75	...	20.25	67.25	28.00	95.25	...
Incendiary	...	...	...	...	...	...	...	...	...	...	...
Industrial Operations	...	...	...	...	...	...	...	...	...	...	...
Unclassified	...	...	...	...	...	...	...	...	...	...	...
Unknown	120½	12	186.50	186.50	90.00	...	276.50	271.99	129.33	401.32	...
TOTALS	345½	2,028	$ 2,144.75	$ 3,644.75	$ 11,787.50	...	$ 15,432.25	$ 868.40	$ 1,826.56	$ 2,694.96	...
FIRES OUTSIDE FOREST RESERVES											
Campers	52,179	626,451	$ 304,645.50	$ 305,660.50	$245,833.75	$ 400.00	$ 551,894.25	$ 1,909.01	$ 34,275.68	$ 36,184.69	...
Smokers	12	22,321	11,061.25	11,061.25	809.75	...	11,871.00	85.83	656.46	742.29	...
Settlers	8,051	167,484	102,739.75	137,750.25	77,339.50	5,813.75	220,903.50	1,336.81	26,740.49	28,077.30	...
Railways	...	...	...	...	793.75	75.00	868.75	33.10	144.72	177.82	...
Lightning	...	800	300.00	300.00	400.00	...	700.00	26.62	174.25	200.87	...
Incendiary	15,206	144,045	91,786.25	104,436.25	73,870.87	3,473.25	181,780.37	985.01	20,066.47	21,051.48	...
Industrial Operations	1,500	4,340	3,713.00	4,213.00	7,450.00	3,250.00	14,913.00	70.79	1,721.27	1,792.06	...
Unclassified	6,328½	101,210	72,264.35	72,264.35	52,128.50	2,600.00	126,992.85	823.53	8,904.55	9,728.08	...
Unknown	118,398	838,848	427,004.10	435,804.10	470,318.36	19,501.00	925,623.46	2,484.19	65,401.18	67,885.37	...
Public Works	...	...	...	...	...	...	...	3.65	...	3.65	...
Miscellaneous Expenditure							...	...	1,949.96	1,949.96	...
TOTALS	201,674½	1,905,499	$1,013,514.20	$1,071,489.70	$928,944.48	$35,113.00	$2,035,547.18	$ 7,758.54	$160,035.03	$167,793.57	...
FIRES WITHIN AND WITHOUT FOREST RESERVES											
Campers	52,179	626,461	$ 304,649.25	$ 305,664.25	$245,883.75	$ 400.00	$ 551,948.00	$ 2,010.04	$ 34,361.83	$ 36,145.84	...
Smokers	12	22,325	11,064.25	11,064.25	813.50	...	11,877.75	159.20	663.11	822.31	...
Settlers	8,051	167,484	102,739.75	137,750.25	77,339.50	5,813.75	220,903.50	1,336.81	26,740.49	28,077.30	...
Railways	225	2,000	1,950.00	3,450.00	12,418.75	75.00	15,943.75	387.86	1,721.15	2,109.01	...
Lightning	...	802	301.50	301.50	418.75	...	720.25	93.87	202.25	296.12	...
Incendiary	15,206	144,045	91,786.25	104,436.25	73,870.87	3,473.25	181,780.37	985.01	20,066.47	21,051.48	...
Industrial Operations	1,500	4,340	3,713.00	4,213.00	7,450.00	3,250.00	14,913.00	70.79	1,721.27	1,792.06	...
Unclassified	6,328½	101,210	72,264.35	72,264.35	52,128.50	2,600.00	126,992.85	823.53	8,904.55	9,728.08	...
Unknown	118,518½	838,860	427,190.60	435,990.60	470,408.36	19,501.00	925,899.96	2,756.18	65,530.51	68,286.69	...
Public Works	...	...	...	...	...	...	...	3.65	...	3.65	...
Miscellaneous Expenditure							...	...	1,949.96	1,949.96	...
TOTALS	202,020	1,907,527	$1,015,658.95	$1,075,134.45	$940,731.98	$35,113.00	$2,050,979.43	$ 8,626.94	$161,861.59	$170,488.53	...
SUMMARY BY DIVISIONS											
N.A.F.D.*	196,189½	1,883,304	$ 997,001.83	$1,025,864.83	$897,837.61	$30,973.00	$1,954,675.44	$ 7,017.00	$149,963.30	$156,980.30	...
Clearwater	5,417	22,014	16,382.50	45,495.00	30,546.87	4,140.00	80,181.87	697.74	7,796.06	8,493.80	...
Crowsnest-Bow	...	...	...	...	50.00	...	50.00	114.81	65.25	180.06	...
Brazeau-Athabaska	413½	2,209	2,274.62	3,774.62	12,297.50	...	16,072.12	797.39	2,087.02	2,884.41	...
Cypress Hills / Miscellaneous Expenditure	...	...	...					...	1,949.96	1,949.96	...
TOTALS	202,020	1,907,527	$1,015,658.95	$1,075,134.45	$940,731.98	$35,113.00	$2,050,979.43	$ 8,626.94	$161,861.59	$170,488.53	...

*N.A.F.D.—Northern Alberta Forest District

SUMMARY SHOWING TOTAL NUMBER OF FIRES AND BURNT OVER AREA FROM 1931 TO 1941, INCLUSIVE

Year	Total No. of Fires	Total Acreage	Not Forested	Net Acreage
1931	622	604,876.12	209,064.75	395,811.37
1932	379	136,117.89	68,253.42	67,864.47
1933	288	93,765	30,955.88	62,809.12
1934	240	58,870	21,656.5	37,213.5
1935	97	6,319.75	3,267.75	3,052
1936	248	204,454	46,534	157,920
1937	375	835,259	155,069.5	680,189.5
1938	521	1,758,345.5	842,384	915,961.5
1939	499	429,139.25	159,774.5	269,364.75
1940	313	474,244.25	108,597.5	365,646.75
1941	445	1,355,424.5	459,475	895,949.5
	4,027	5,956,815.26	$2,105,032.80	3,851,782.46

Fire-guard roads, Cypress Hills Forest

Radio.—In preparation for the fire season of 1941 in the Northern Alberta Fire District, the nine radio equipped lookouts were checked as to the serviceability of their equipment. They were all in operation by the 25th of April.

During the spring and early summer all cars operated by timber inspectors were equipped with two-way radios. This brought the number of radio-equipped two-way "talkie" cars operated by the Forest Service to sixteen. Additional portable equipment was purchased and distributed, bringing the total of this class of equipment to fifty-seven sets throughout the province.

In order to take care of the increased coverage from the main station in Edmonton, additional two radio frequency channels were constructed to conform

Reproduction of lodgepole pine, Cypress Hills Forest

with the original design and were added to the existing transmitter. This addition provides a band switching five channel transmitter at the Edmonton office, enabling all headquarters stations in the province to be contacted direct from the Edmonton office.

The same difficulty is being encountered in securing necessary replacements and new equipment for radios that is being experienced in other provincial services and by commercial enterprises. This shortage is due, of course, to priorities, and to preferences the armed forces have over others. As previously mentioned, the difficulty of obtaining trained personnel is also a problem of the communication system.

The new look-out, known as the Goose Mountain look-out, was constructed on the location already stated and was placed in operation on August 19th.

Forest Administration

Provincial Forest Reserves.—Timber disposal from the forest reserves exceeded that of the previous season, and revenue in this respect showed a marked increase.

The administration of pastures, drift fences, oil well drilling sites, trappers' cabins, etc., was carried out with practically the same volume of business as that of previous years.

Demands for mining timber of all classes were very much in evidence, and the Crowsnest area was severely taxed. The few remaining stands of dry timber that are readily accessible to the mines are being rapidly depleted, and it is becoming more and more necessary that timber suitable for mining use be hauled from greater distances.

TIMBER CUT UNDER PERMIT, ALBERTA FOREST RESERVES—FISCAL YEAR 1941-42

	Cypress Hills	Crowsnest-Bow River	Clearwater	Brazeau-Athabaska	Totals
Number of permits	297	227	25	30	579
Fuelwood, dry (cords)	832	1,768	55	49	2,704
Fuelwood, green (cords)	.....	13	.....	44	57
Mine timber, dry (lineal feet)	.....	748,814	.....	55,600	804,414
Mine timber, green (lineal feet)	.....	.....	42,450	.....	42,450
Lagging (cords)	.....	14	.....	.....	14
Lagging (lineal feet)	.....	542,400	17,500	.....	559,900
Fence posts	22,060	7,292	1,250	36	30,638
Sawlogs (F.B.M.)	4,000	318,407	4,500.000	.....	4,822,407
Round timber (pieces)	14,943	17,657	199	200	32,999
Round timber (lineal feet)	.....	18,043	1,708	220	19,971
Telephone poles (pieces)	.....	350	.....	.....	350
Tram ties (lineal feet)	.....	400	.....	.....	400

TIMBER OPERATIONS ON FOREST RESERVE TIMBER SALES—FISCAL YEAR 1941-42

	Crowsnest-Bow River	Clearwater	Brazeau-Athabaska	Totals
Number of active operations	23	5	17	45
Lumber, feet, board measure	9,865,487	684,219	3,200,115	13,749,821
Railway ties	.....	40,725	102,118	142,843
Piling	7,265	13,400	.....	20,665
Mine timber, lineal feet	370,907	691,388	967,853	2,030,148
Lagging, lineal feet	274,014	34,350	.....	308,364
Building logs and culvert timber, lineal feet	.....	.....	1,650	1,650
Fence posts	1,546	.....	50	1,596
Fuelwood, cords	343	.....	100	443
Tramway ties, number	.....	.....	2,054	2,054
Poles	785	.....	.....	785
Rails	625	.....	.....	625

Provincial Lands.—As pointed out in the first part of this report, the demand for forest products has reached an all-time high, and this is reflected in the revenue that has been obtained.

Although the prices did not increase in the same proportion they did during the war years of 1914-18, a slight increase has been allowed by the Timber Controller, which takes care in part of the increased living costs, and allows for a reasonable profit. Demands for dry seasoned lumber exceed the supply, and if it were not for the ceiling prices set by the Timber Controller, prices of lumber would jump skyward. The problem now confronting timber operators is the shortage of labour.

Regulations for the disposal of lumber on provincial lands are working out quite satisfactorily, and it is pleasing to be able to report that the regulations now authorizing the securing of larger areas containing more timber—to insure greater permanency and longer tenure of operation—have met with general approval.

During the year under review the administration of the timber on school lands was transferred to this Division from the School Lands Division. The following tables summarize the timber business transacted at Head Office for the Edmonton office, and also at the land agencies at Calgary and Peace River.

STATEMENT OF TIMBER OPERATIONS FOR 1941-42 ON PROVINCIAL LANDS IN THE EDMONTON DISTRICT AND IN THE CALGARY AND PEACE RIVER LAND AGENCIES

	Head Office Edmonton District	Calgary Agency	Peace River Agency	Totals
(a) OPERATIONS ON LICENCE TIMBER BERTHS:				
Number of active operations	51	8	.....	59
Lumber, feet, board measure	111,636,717	9,065,032	.....	120,701.49
Railway ties	101,462	.....	.....	101,462
Mine timber, lineal feet	.....	2,360,598	.....	2,360,598
Lath	3,512,050	.....	.....	3,512,050
Building logs, lineal feet	5,780	.....	.....	5,780
Fuelwood, cords	.....	63½	.....	63½
Lagging, lineal feet	.....	86,442	.....	86,442
Snow fence lath	364,290	.....	.....	364,290
(b) OPERATIONS ON TIMBER PERMIT BERTHS:				
Number of active operations	196	35	.....	231
Lumber, feet, board measure	78,658,887	9,263,329	.....	87,922,216
Railway ties	546,197	43,216	.....	589,413
Mine timber, lineal feet	.....	114,604	.....	114,604
Lath	736,050	422,450	.....	1,158,500
Lagging, lineal feet	.....	389,644	.....	389,644
Telegraph and telephone poles, lineal feet	2,465	.....	.....	2,465
Building logs and culvert timber, lineal feet	24,100	.....	.....	24,100
Fuelwood, cords	3,246	721	.....	3,967
Shingles	294,000	.....	.....	294,000
Fence posts	1,783	.....	.....	1,783
(c) OPERATIONS UNDER SPECIAL TIMBER PERMITS:				
(Sec. 68 of the Timber Regulations)				
Number of active operations	318	48	.....	366
Lumber, feet, board measure	15,691,994	2,556,732	.....	18,248,726
Railway ties	184,171	27,225	.....	211,396
Piling, lineal feet	3,986	.....	.....	3,986
Mine timber, lineal feet	7,740	.....	.....	7,740
Lagging, lineal feet	2,000	.....	.....	2,000
Telegraph and telephone poles, lineal feet	23,460	14,160	.....	37,620
Building logs and culvert timber, lineal feet	2,444	.....	.....	2,444
Fence posts	810	.....	.....	810
Fuelwood, cords	205	15	.....	220
Shingles	259,440	.....	.....	259,440
Lath	939,700	801,555	.....	1,741,255
Birch veneer, lbs.	4,340,407	.....	.....	4,340,407

*(d) PROVINCIAL LANDS TIMBER PERMITS ISSUED AUTHORIZING THE CUTTING OF MATERIAL SHOWN HEREUNDER:

Number of permits issued	1,116	169	685	1,970
Building logs, lineal feet	21,419	10,996	41,433	73,848
Mining timber, lineal feet	90,850	816,500	.....	907,350
Telephone poles	29,925	4,000	.....	33,925
Piling, lineal feet	.....	.....	950	950
Lumber, feet, board measure	6,310,552	145,834	3,646,012	10,102,398
Fence posts	88,340	47,890	66,450	202,680
Roof poles	30,320	430	45,316	76,066
Fence rails	145,575	5,130	246,000	396,705
Fuelwood, cords	4,471	1,973	1,471	7,915
Railway ties	1,700	600	.....	2,300
Shingles	97,500	.....	175,000	272,500
Shingle bolts, cords	133	39	132	304
Lath bolts	60	.....	.....	60
Lath	10,000	.....	.....	10,000

*The figures shown under this heading are the amounts authorized to be cut. The amounts actually cut under this heading are not available.

STATEMENT OF TIMBER OPERATIONS FOR 1941-42 ON SCHOOL LANDS IN THE EDMONTON DISTRICT AND IN THE CALGARY AND PEACE RIVER LAND AGENCIES

	Head Office Edmonton District	Calgary Agency	Peace River Agency	Totals
(a) OPERATIONS ON TIMBER PERMIT BERTHS:				
Number of active operations	19	5	.....	24
Lumber, feet, board measure	10,558,839	3,311,845	.....	13,870,684
Railway ties	16,666	.....	.....	16,666
Lath	327,250	790,500	.....	1,117,750
(b) OPERATIONS UNDER SPECIAL TIMBER PERMITS: (Section 25(g) of the Timber Regulations)				
Number of active operations	37	16	.....	53
Lumber, feet, board measure	1,465,793	973,896	.....	2,439,689
Railway ties	18,218	4,525	.....	22,743
Mine timber, lineal feet	11,566	.....	.....	11,566
Fuelwood, cords	.....	20	.....	20
Birch Veneer, lbs.	451,615	.....	.....	451,615
*(c) SCHOOL LANDS TIMBER PERMITS ISSUED AUTHORIZING THE CUTTING OF MATERIAL SHOWN HEREUNDER:				
Number of permits issued	245	23	26	294
Building logs	6,858	2,600	.....	9,458
Mining timber	23,000	.....	.....	23,000
Telephone poles	600	.....	.....	600
Piling, lineal feet	270	.....	.....	270
Lumber, feet, board measure	353,439	35,000	99,000	487,439
Fence posts	9,720	4,150	.....	13,870
Roof poles	300	75	.....	375
Fence rails	733	.....	.....	733
Fuelwood, cords	1,328	138	26	1,492
Mine ties	1,500	.....	.....	1,500
Shingles	8,000	.....	.....	8,000
Shingle bolts, cords	2	.....	3	5

*The figures shown under this heading are the amounts authorized to be cut. The amounts actually cut under this heading are not available.

SUMMARY OF TIMBER OPERATIONS ON PROVINCIAL AND SCHOOL LANDS, 1941-42

	PROVINCIAL LANDS				SCHOOL LANDS			FOREST RESERVES		
	Licence Timber Berths	Permit Timber Berths	Special Section 68	Other Permits	Permit Timber Berths	Special Section 25 (g)	Other Permits	Timber Sales	Timber Permits	Totals
Number of active operations	59	231	366	1,970	24	53	294	45	579	3,621
Lumber, feet, board measure	120,701,749	87,922,216	18,248,726	10,102,398	13,870,684	2,439,689	487,439	13,749,821	4,822,407	272,345,129
Railway ties	101,462	589,413	211,396	2,300	16,666	22,743	....	142,843	.....	1,086,823
Piling, lineal feet	.....	.....	3,986	950	.....	.....	270	20,665	.....	25,871
Mine timber, lineal feet	2,447,040	504,248	9,740	907,350	.....	11,566	23,000	2,338,512	1,420,764	7,662,220
Telegraph and telephone poles, lin. ft.	.....	2,465	37,620	33,925	.....	.....	600	.....	8,750	83,360
Building logs and culvert timber, lin. ft.	5,780	24,100	2,444	73,848	.....	.....	9,548	1,650	19,971	137,341
Fence rails	.....	.....	.....	396,705	.....	.....	733	625	.....	398,063
Fence posts	.....	1,783	810	202,680	.....	.....	13,870	1,596	30,638	251,377
Roof poles	.....	.....	.....	76,066	.....	.....	375	.....	.....	76,441
Fuelwood, cords	63½	3,967	220	7,915	.....	20	1,492	443	2,761	16,881½
Mine ties, number	.....	.....	.....	.....	.....	.....	1,500	.....	.....	1,500
Shingles	.....	294,000	259,440	272,500	.....	.....	8,000	.....	.....	833,940
Shingle bolts, cords	.....	.....	.....	304	.....	.....	5	.....	.....	309
Lath	3,512,050	1,158,500	1,741,255	10,000	1,117,750	.....	.....	.....	.....	7,539,555
Lath, snow fence	364,290	.....	.....	.....	.....	.....	.....	.....	.....	364,290
Lath bolts, cords	.....	.....	.....	60	.....	.....	.....	.....	.....	60
Tramway ties	.....	.....	.....	.....	.....	.....	.....	2,054	400	2,454
Round timber, pieces	.....	.....	.....	.....	.....	.....	.....	785	32,999	33,784
Birch veneer, lbs.	.....	.....	4,340,407	.....	.....	451,615	.....	.....	.....	4,792,022
Number of inspection reports submitted by timber inspectors	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,488
Number of timber seizures made	.....	.....	.....	.....	.....	.....	.....	.....	.....	198

Grazing

In 1938 it was necessary to reduce the carrying capacity of various ranges throughout the southern reserves, with a view to bringing back the grass cover and obtaining better forage conditions. This situation was brought about by the cycle of dry years which had reduced moisture and vegetation on the land to a serious extent.

The increased moisture made it possible to slightly increase the carrying capacities in 1939, 1940 and again in 1941. In the spring of 1941 the early precipitation was light, but sufficient moisture was received to keep the top soil damp. This condition lasted throughout the months of April and May, while during the month of June heavy showers fell every few days. Early spring grass was a bit slower than usual in starting, but once started the growth was fast and rank, with the result that, as a whole, the forage crop was considered slightly better than in the previous year.

Practically all stock leaving the grazing areas in the fall was in excellent condition, the exception being a few that were grazed in higher altitudes where the season is very short. This was not, however, due to a shortage of grass, but rather to the shortness of the season in these areas, which did not permit the stock sufficient time to put on the required weight before they were removed.

The ranges in all districts were reported in excellent condition with reserve forage available, and no over-grazing was reported.

The market for cattle was excellent throughout the year, and prices showed a substantial increase over those paid for the past number of years. On the fall market fat steers brought as much as $8.50 per hundred pounds, fat cows $80.00 per head and calves $30.00 per head.

The market for horses was fair, with prices ranging from $60.00 to $75.00 per head. The market for heavier horses, however, showed no improvement over previous years; in fact there was very light demand for this class of stock.

GRAZING STATEMENT—ALBERTA FOREST SERVICE, 1941-42

Forest	No. of Permits	No. of Horses	No. of Cattle	No. of Sheep
Cypress Hills	39	411	2,249	.....
Crowsnest-Bow River	284	1,799	19,911	4,735
Clearwater	48	548	210	.....
Brazeau-Athabaska	108	574	81	10
TOTALS	479	3,332	22,451	4,745

COMPARATIVE STATEMENT, GRAZING—ALBERT FOREST SERVICE

	1931	1932	1933	1934	1935	1936	1937
Number of permits	456	606	493	517	533	497	498.4
Number of cattle	15,041	20,086	20,230	22,557	25,097	23,407	18,921
Number of horses	3,417	3,377	3,185	2,541	2,207	2,441	3,418
Number of sheep	4,379	7,465	6,705	3,078	4,114	5,443	3,174

	1938	1939	1940	1941	Totals	Average
Number of permits	437	482	435	497	5,482	498.4
Number of cattle	22,280	22,386	23,831	22,451	236,287	21,480.6
Number of horses	3,024	2,731	3,194	3,332	32,867	2,987.9
Number of sheep	4,791	6,883	3,954	4,745	54,731	4,975.5

Improvements

The continuance in shortage of funds, existing through the past several years, has forced the reduction of construction, such as buildings, new telephone lines, roads and other structures, to an absolute minimum. It was possible, however, to make some progress each year in the construction of certain buildings which required renewal, together with the carrying out of extensive repairs.

Although the season was very favourable to fire suppression, it was necessary to spend a great deal of time in fire patrol, and there was a long hazardous period during which it was necessary to keep constant vigilance.

Stop-over cabin, Sentinel district, Bow River Forest

Tourist shelter, Livingstone district, Crowsnest Forest

The same amount of ranger labour, as was available last year, could not be expended in maintenance and new construction work. In the Crowsnest-Bow River Forest, however, a substantial start was made on the Aura ranger station house. The work done covered the building of the log walls, sheeting and part shingling of the roof, laying the first floor and constructing the verandah. A garage was constructed of logs at the Big Horn ranger station, and a new stable was constructed at the Elbow ranger station.

A Fisheries cabin, to accommodate Fisheries' officers and to store equipment at the Kananaskis administration site, was completed during the period under review.

A cabin was completed on the Clearwater forest, at the head-quarters site of the Clearwater district, for the accommodation of the assistant forest ranger.

The James River cabin, located on the east half of section 1, township 34, range 8, west of the 5th meridian, was erected, and a building, 20′×26′ started last season as quarters for the assistant ranger of the district was nearly completed. A new garage was constructed on the site of the Red Deer ranger station.

On the Brazeau-Athabaska forest two cabins were erected, being the Leyland cache for the purpose of storing equipment and for providing a place for repairs. This cache was erected on section 8, township 47, range 23, west of the 5th meridian on the Leyland ranger station grounds. The Yellowhead cache for the same purpose was erected adjacent to the Yellowhead cabin on section 2, township 50, range 23, west of the 5th meridian. In addition to these cabins, a number of small buildings and sheds was erected.

It becomes increasingly difficult to maintain the large number of buildings with the small sums that are appropriated for this purpose. As the condition of buildings is often taken as a criterion of the industry, prosperity and character of the occupants in normal life, every effort should be made to keep government buildings in first class repair. With constantly decreasing appropriations, however, this becomes more and more difficult. The effort to do all that is possible with the funds available is, however, continued, with the ever present hope that at some time more money will be appropriated.

IMPROVEMENT STATEMENT

NEW CONSTRUCTION PROJECTS:

Forest	Houses	Garages, Sheds, etc.	Fences	Fields (breaking in acres)	Water Supply Systems	Barns and Stables	Telephones (miles)	Corrals	Bridges	Look-out Towers	Trails (Miles)	Cabins	Fireguard Roads (Miles)	Tourist Stoves	Miscellaneous
Cypress Hills	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....
Crowsnest	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Bow River	2	3	....	....	....	1	....	....	....	....	4.5	2	....	....	....
Clearwater	....	3	....	....	....	....	....	3	....	....	22.4	4	....	....	13
Brazeau	....	5	4	....	....	....	1.5	24	....	....	....	....	....	....	....
Athabaska	....	4	....	....	....	....	.07	....	....	....	22	2	....	....	....
TOTALS	2	15	4	....	....	1	1.57	28	....	....	48.9	8	....	....	13

MAINTENANCE PROJECTS:

Forest	Houses	Cabins	Barns and Stables	Telephones (Miles)	Trails (Miles)	Roads (Miles)	Fences	Corrals	Water Supply Systems	Garages, Sheds, etc.	Look-out Towers and Cabins	Grounds	Hay Meadows & Pastures	Ferries	Miscellaneous
Cypress Hills	2	1	1	8	....	....	1	1	1	4	....	1	....	....	1
Crowsnest	8	1	7	161	248	141	19	4	4	9	2	9	4	....	1
Bow River	6	12	5	284.5	499	107.5	20	5	8	6	....	16	6	....	3
Brazeau	4	7	1	197.1	273	5	7	2	....	6	2	2	1	....	....
Athabaska	2	15	....	88.6	505	29	7	....	2	2	2	4	....	....	2
Clearwater	4	10	2	211.5	831	44	7	1	....	5	....	7	4	1	2
TOTALS	26	46	16	950.7	2,356	326.5	61	13	15	32	6	39	15	1	9

IMPROVEMENTS—STATEMENT OF MAN-DAYS WORKED

NEW CONSTRUCTION PROJECTS:

Forest	Houses	Garages, Sheds, etc.	Fences	Fields (breaking) in acres	Water Supplies	Telephones (miles)	Corrals	Barns and Stables	Bridges	Look-out Towers	Trails (miles)	Cabins	Fireguard Roads (miles)	Tourist Stoves	Miscellaneous
Clearwater	....	9.5	....	....	....	....	27	....	....	....	28	134.5	....	....	70
Cypress Hills	....	....	....	....	....	....	23	....	....	....	....	....	....	....	....
Bow River	157	34.5	....	....	....	....	....	94	....	....	16	128	....	....	....
Athabaska	....	57.5	....	....	....	4	....	....	....	....	70	13	....	....	....
Brazeau	....	146	55.5	....	....	7	....	....	....	....	7	....	....	....	....
Crowsnest	....	246.5	....	....	....	....	....	....	....	....	....	....	....	....	....
TOTALS	157	494	55.5	....	....	11	50	94	....	....	121	275.5	....	....	70

MAINTENANCE PROJECTS:

Forest	Houses	Cabins	Barns and Stables	Telephones (miles)	Trails (miles)	Roads (miles)	Fences	Corrals	Water Supplies	Garages, Sheds, Etc.	Look-out Towers and Cabins	Grounds	Hay Meadows & Pastures	Ferries	Miscellaneous
Clearwater	48.5	9.5	18	261.5	300.5	108.5	148	4	....	17	....	67	10.5	10	11
Cypress Hills	33	7	6	49	....	....	8.5	1.5	18.5	13.5	....	8.5	....	....	13.5
Bow River	27	34	13.5	235.5	312	443	264	21	21	6.5	....	64	17	....	11.5
Athabaska	39.5	85.5	5	84.5	289	6	36.5	....	5.5	12.5	30.5	35.5	26	....	4
Brazeau	47.5	60	5.5	199	325	....	63	3	....	15	8.5	19.5	.5	....	....
Crowsnest	74.5	....	11.5	258.5	127.5	109.5	172.5	23.5	11.5	19.5	1.5	46.5	21.5	....	6
TOTALS	270	196	59.5	1,088	1,354	667	692.5	53	56.5	84	40.5	241	75.5	10	46

Publicity

It is regretted that it becomes necessary to report again the inability to make any substantial progress in the matter of publicity. The press and different radio stations have given splendid co-operation by inserting news items and by making announcements over the air regarding fire hazards, but lack of staff has not permitted the required time to prepare and deliver addresses and to write articles.

Publicity is an extremely important phase of fire prevention. Although the forests which are being protected belong to the public, and it is their definite duty to protect them, human nature is so constituted that it must be repeatedly reminded of this duty in order that a proper sense of responsibility may be maintained.

Nursery and Tree Distribution

Continued progress is being made in tree nursery work at the Oliver Mental Institute and the Fort Saskatchewan and Lethbridge gaols. The progress being made is very gratifying, as information gained from year to year is being constantly added to in the knowledge of different exotic trees which can be successfully propagated in this province. This knowledge will be invaluable when funds are available for reforestation. It will then be possible to plant certain trees, which have been tested to this climate, and which are more valuable for all purposes than some of the native species. In this way the existing forests will not only be improved, but it will also be possible to plant denuded lands with trees which will eventually produce more valuable forest products.

While engaged in these experiments, the distribution of trees throughout the province was carried out as in former years. Reports are received from time to time commending this service that is being rendered, as well as the healthy condition of the transplants. With benefits being derived by some of the earlier planters, an ocular example being provided, more farmers are taking advantage of the opportunity for planting trees, which year by year is offered by this service.

Tree Distribution.—The following species and quantities were given and sent out from Oliver in the spring of 1942:—

Transplants:		
White Spruce (*Picea glauca*)	33,710	
Lodgepole Pine (*Pinus murrayana*)	9,885	
Red Pine (*Pinus resinosa*)	5,900	
Green Ash (*Fraxinus pennsylvanica*)	12,645	
Bur Oak (*Quercus macrocarpa*)	13,955	
Douglas Fir (*Pseudotsuga mucronata*)	11,160	
Siberian Larch (*Larix sibirica*)	2,538	
White Oak (*Quercus alba*)	1,795	
Red Oak (*Quercus rubra*)	2,040	
American Elm (*Ulmus americana*)	930	
		94,558
Cuttings:		
Laurel Leaf Willow (*Salix pentandra*)	15,599	
Golden Willow (*Salix vitellina*)	14,390	
North-west Poplar (*Populus*)	10,925	
		40,914
Seedlings:		
Colorado Blue Spruce (*Picea pungens*)	400	
White Spruce (*Picea glauca*)	45,000	
Sitka Spruce (*Picea sitchensis*)	200	
Douglas Fir (*Pseudotsuga mucronata*)	200	
Jackpine (*Pinus Banksiana*)	500	
		46,300
Ornamental Species:		
Cedar (*Thuja occidentalis*)	10	
Birch (*Betula alba*)	59	
Flowering Almond (*Prunus triloba*)	93	
Ginnalian Maple (*Acer ginnala*)	29	
Silver Maple (*Acer Saccharinum*)	3	
Honeysuckle (*Lonicera ciliosa*)	77	
Red Elderberry	38	
Regosa Rose Bushes	17	
Eastern Cedar (*Thuja occidentalis*)	5	
Weeping Birch	6	
Mountain Ash (*Pyrus americana*)	2	
Mock-orange (*Syringa-Philadelphus Lewisii*)	28	
Plum (*Prunus nigra*)	8	
Hawthorne (*Crataegus*)	104	
Horse Chestnut (*Hippocastanum*)	2	
Spirea	100	
Basswood (*Tilia americana*)	2	
Lilacs (*Syringa japonica*)	200	
		783
		182,555

MILEAGE TRAVELLED BY EMPLOYEES OF THE ALBERTA FOREST SERVICE

FISCAL YEAR 1941-42

Divisions	Foot	Saddle	Driving	Speeder	Auto	Canoe	Rowboat	Motorboat	Plane	Railway	Other	Totals
Northern Alberta Forest District	34,874.5	35,108	18,733.5	17,275	123,021	1,212	625	5,301.5	235	9,804	551	246,740.5
Crowsnest-Bow River Forest	3,694	34,063	3,486	.....	65,009	.....	.....	17	.....	980	.....	107,249
Clearwater Forest	4,815	15,321	3,205	1,374	39,466	.....	.....	.....	.....	717	.....	64,898
Brazeau-Athabaska Forest	4,459	16,860	1,774	4,462	19,843	.....	.....	.....	.....	2,756	60	50,214
Cypress Hills Forest	62	764	46	.....	4,720	.....	.....	.....	.....	.....	.....	5,592
Radio Division	298	12	218	.....	16,360	.....	.....	.....	544	2,410	518	20,360
Game Guardians in N.A.F.D.	3,367	3,266	5,737	197	18,449	.....	.....	.....	.....	2,165	1,335	34,516
TOTALS	51,569.5	105,394	33,199.5	23,308	286,868	1,212	625	5,318.5	779	18,832	2,464	529,569.5

Fisheries and Game Administration

REPORT OF THE FISH AND GAME COMMISSIONER, E. S. HUESTIS

FISHERIES BRANCH

At the beginning of the fiscal year 1941-42 the Fisheries Branch returned to the Department of Lands and Mines.This Branch had been, for a number of years, attached to this Department, but at the end of the fiscal year 1936-37 it was transferred, along with the Game Branch, to the Department of Agriculture, and has remained under that Department until the opening of the fiscal year now under review.

When the Department again took over the direction of the Fisheries Service a careful examination was made of existing policy and every means of information was obtained by studying the experiences of various agencies throughout the North American Continent, with a view to securing the best possible administration of Alberta's fisheries. In this and in all other investigation work, together with the setting up of a policy, the Branch has been extremely fortunate in having the services of Doctor R. B. Miller of the Zoological Department of the University of Alberta, who is thoroughly competent to advise on all such matters.

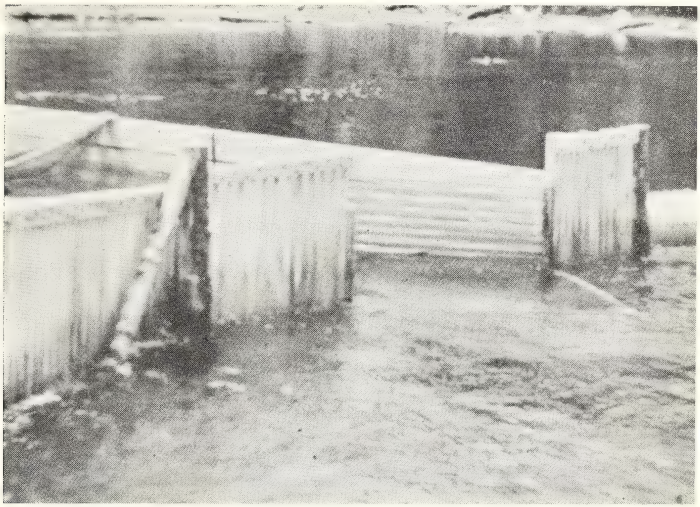
It was found that the policy of distribution of fry in angling streams throughout the province had not materially increased the fish population due to many causes. A study of this policy, and the results obtained in other parts of the continent, was made and it was found that the policy adopted in Alberta and used in other parts of North America was not proving satisfactory.

On examining the results of other systems used in various parts of the continent, it was found that the most successful procedure for money expended was in the distribution of fingerlings of as large size as possible throughout the spring season. In order to carry out such a policy it was realized that fairly large expenditures would be required in the construction of rearing ponds throughout Alberta, and that such rearing ponds should be strategically placed so as to cut down the cost of distribution and give a fair and equitable supply to each and every part of the province.

As soon as it was decided to proceed on such policy a search was immediately made throughout various areas, particularly those areas located near angling streams, for large springs where water control would not be difficult, for the erection of rearing ponds. Many such springs had been previously located and in some areas rearing ponds had already been established. These had not previously been tried for the holding of fish throughout the winter and examination had to be made not only of new springs, but also of those already in existence in order to determine the possibility of retaining fish in the ponds throughout the winter months.

In the selection of a new policy and in the management of angling waters, commercial lakes and other matters pertaining to the Fisheries Service, reference was made from time to time to the Alberta Fish and Game Association and to the Department of Zoology of the University of Alberta; discussion surrounding these matters was also carried out with the commercial fisherman, who is a vitally interested party in the handling of commercial fish. Every assistance given to the Fisheries Service by these people has been greatly appreciated.

The large commercial fish hatchery at Canyon Creek was remodelled during the year as far as power supply was concerned. For a number of years steam was used at this plant, but the machinery had depreciated to the extent where it was found advisable to replace it. In doing so it was found to be more advantageous and economical to replace the steam plants by the more modern diesel plants which were found to give excellent service.



Fish Trap at Kananaskis

Commercial Fishing

A total of 5,920,099 pounds of all species was taken by commercial fishermen during the fiscal year of 1941-42. Following are the amounts caught of each species, the value to the fishermen and the marketed value.

	Pounds	Landed Value	Marketed Value
Mixed Fish	312,857	$ 3,076.82	$ 6,153.64
Perch	46,958	1,896.14	4,306.49
Pickerel	265,636	8,723.32	20,953.31
Pike	495,167	9,811.51	24,600.87
Trout (Lake)	32,393	2,040.40	6,900.74
Tullibee	2,470,412	26,154.14	52,307.68
Whitefish	2,296,676	146,698.05	321,914.65
TOTALS	5,920,099	$198,400.38	$437,137.38

With the exception of necessary replacement of nets, new equipment purchased during the season was limited in quantity. Commercial fishing licences issued during the year totalled 1,565, a reduction of 143 from the previous year. Domestic licences, permitting the taking of fish for home consumption only, reached a total of 266.

Commercial fishing generally speaking was good, the best winter fishing for whitefish coming from Pigeon and Cold lakes. The bulk of the tullibee caught was purchased by the Alberta mink and fox farmers for animal food.

Whitefish Hatchery

The season's operations of the whitefish hatchery at Lesser Slave Lake were satisfactory, and a total of 58,850,000 eyed whitefish eggs were planted in the following lakes:

Battle Lake	4,000,000
Beaver Lake	2,000,000
Buck Lake (tp. 46, r 6, w 5 m)	4,000,000
Buck Lake (tp. 65, r 17, w 4 m)	2,000,000
Calling Lake	4,000,000
Christina Lake	2,000,000
Cold Lake	5,000,000
Elinor Lake	1,000,000
Heart Lake	2,000,000
Lac La Biche	4,000,000
Lac La Nonne	4,000,000
Lac Ste. Anne	4,000,000
Mosquito Lake	2,000,000
Muriel Lake	1,000,000
Pigeon Lake	4,000,000
Pinehurst Lake	2,000,000
Touchwood Lake	2,000,000
Wabamun Lake	5,850,000
Winifred Lake	4,000,000
TOTAL	58,850,000

Fish Culture

A total of 2,006,900 trout and perch was planted in provincial waters during the period under review. A detailed statement showing the waters which were stocked and the species of fish planted follows:

DISTRIBUTION OF RAINBOW TROUT TO PROVINCIAL WATERS DURING 1941

	Advanced Fry	No. 1 Fingerlings	No. 2 Fingerlings	No. 4 Fingerlings
Beauvois Lake	.....	.....	9,800	.....
Burnstick Lake	.....	15,000	.....	.....
Mary Gregg Lake	.....	.....	.....	6,000
Phyllis Lake	.....	.....	.....	50,000
Tributary to Athabaska River:				
Prairie Creek	.....	.....	.....	29,000
Lobstick River	.....	.....	.....	3,000
Tributary to Bow River:				
Ghost Lake	.....	25,000	.....	55,000
Seebe Lake	.....	.....	.....	32,000
Canmore Creek	.....	.....	.....	2,000
Policeman Creek	.....	.....	.....	2,000
Georgia Creek	.....	.....	.....	3,000
Bowfort Creek	.....	.....	.....	1,000
Flat Creek	.....	.....	.....	2,000
Meadow Creek	.....	.....	.....	6,000
Johnson Creek	.....	.....	.....	4,000
South Meadow Creek	.....	.....	.....	2,000
Windy Creek	.....	.....	.....	4,000
Jumping Pound Creek	.....	.....	.....	21,000
Sibbald Creek	.....	.....	.....	4,000
Little Jumping Pound Creek	.....	.....	.....	15,000
Big Hill Creek	.....	.....	.....	6,000
Lagoons at Exshaw	.....	.....	.....	12,000
Gap Lake	.....	.....	.....	30,000
Tributary to Crowsnest River:				
Crowsnest Lake	.....	30,000	.....	.....
Crowsnest River	.....	10,000	31,000	.....
Gold Creek	.....	.....	2,650	.....
No. 1 Creek	.....	.....	1,000	.....
Todd Creek	.....	.....	2,000	.....
Tributary to Elbow River:				
Elbow River	.....	.....	.....	42,000
Pirmez Creek	.....	.....	.....	23,000
Ford Creek	.....	.....	.....	9,000
Little Elbow River	.....	.....	.....	9,000
Ranger Creek	.....	.....	.....	12,000
Rainy Creek	.....	.....	.....	6,000
Prairie Creek	.....	.....	.....	25,000
Bragg Creek	.....	.....	.....	30,000
Robinson Creek	.....	.....	.....	2,000

	Advanced Fry	No. 1 Fingerlings	No. 2 Fingerlings	No. 4 Fingerlings
Tributary to Highwood River:				
Baker Creek		3,000		
Spalding Creek		2,000		
Miller Creek		3,000		
Greenfeed Creek		5,000		
Pekisko Creek		22,000		
Sullivan Creek		34,700		
High River				23,000
Flat Creek				7,000
Tributary to Kananaskis River:				
Upper Kananaskis Lake	40,000			
Spring Creek No. 3				7,000
Spring Creek No. 23				11,000
Spring Creek No. 29				12,000
Ribbon Creek				10,000
Tributary to McLeod River:				
Thornton Creek		5,000		
Mile 1 and 2 Creeks		5,000		
Sulphur Creek		3,000		
Tye Creek		2,000		
Whitehorse Creek		5,000		
Prospect Creek		5,000		
Cabin Creek		10,000		
McLeod River		15,000		
Wolf Creek				11,500
Trout Creek				25,000
Carrot Creek				7,000
Sundance Creek				4,000
Tributary to North Saskatchewan:				
Modeste Creek				20,000
Poplar Creek				30,000
Wolf Creek				10,000
Tributary to Old Man River:				
Pincher Creek		20,000		
Castle River			20,000	
Carbondale River			15,000	
Racehorse Creek			12,000	
Old Man River			21,000	
Lees Creek			10,000	
Tributary to Red Deer River:				
Blindman River				10,000
West Stoney Creek				15,000
Tributary to Sheep River:				
South Branch Sheep River		28,500		
North Branch Sheep River		4,000		
Fisher Creek		2,500		
Tributary to Waterton River:				
Yarrow Creek		30,000		
Drywood Creek		15,000		
Waterton River		40,000		
Tributary to Willow Creek:				
Burton Creek			5,000	
Brown Creek			5,000	
Trout Creek			5,000	4,000
Lyndon Creek			25,000	
Riley Creek			3,000	
Langford Creek			5,000	
Nelson Creek			5,000	
South Willow Creek			15,000	20,000
North Willow Creek			21,500	20,000
Willow Creek				3,000
Honey Coulee				4,500
Tributary to South Saskatchewan:				
Battle Creek	5,000			
Grayburn Creek	5,000			
TOTALS	50,000	339,700	213,950	701,000

DISTRIBUTION OF YEARLING RAINBOW TROUT

Elbow River		2,000		
Ghost Lake		600		
Seebe Dam		500		
Lagoons at Exshaw		100		
Gap Lake		8,000		
Willow Creek District		1,500		
TOTAL		12,700		

Legal size rainbow trout, tagged Nos. 1 to 100, distributed in various waters 100

DISTRIBUTION OF LOCH LEVEN TROUT TO PROVINCIAL WATERS DURING 1941

	No. 1 Fingerlings
Tributary to Clearwater River:	
North Prairie Creek	20,000
South Prairie Creek	15,000
Cold Creek	5,000
Moose Creek	5,000
Prairie Creek	15,000
Alford Creek	60,000
Suhr Creek	10,000
Muskeg Creek	20,000
Tributary to North Saskatchewan River:	
Shunda Creek	25,000
Havens Creek	5,000
Snow Creek	5,000
Wolf Creek	4,000
Tributary to Red Deer River:	
North Raven River	25,000
South Raven River	44,000
Carr Creek	5,000
Raven River	10,000
Bearberry Creek	30,000
Dennison Creek	10,000
Grant Creek	20,000
Castle Creek	9,000
Stever Creek	5,000
Gibson Creek	5,000
Spring Creek	20,000
Rose Dame	5,000
Crooked Creek	4,000
James River	25,000
Blindman River	2,000
TOTAL	368,000

DISTRIBUTION OF SPECKLED TROUT TO PROVINCIAL WATERS DURING 1941

	No. 1 Fingerlings
Whitewood Lake	1,000
Tributary to Lesser Slave Lake:	
Marten River	25,000
Prairie Creek	25,000
Swan River	25,000
Tributary to McLeod River:	
Carrot Creek	4,750
Sundance Creek	14,000
Trout Creek	17,000
Wolf Creek	4,500
Tributary to Peace River:	
Harmon River	25,000
Tributary to Pembina River:	
Lobstock River	2,700
Tributary to Wabamun Lake:	
Jackpine Creek	1,000
TOTAL	144,950

DISTRIBUTION OF CUTTHROAT TROUT TO PROVINCIAL WATERS DURING 1941

	Advanced Fry	No. 4 Fingerlings
Tributary to Burnstick Lake	8,500	.....
Tributary to Kananaskis Lakes:		
Spring Creek No. 46	.....	6,000
TOTALS	8,500	6,000

PERCH DISTRIBUTION DURING 1941

	Size	Number Planted
Chain Lake	3″ to 6″	15,000
Chip Lake	3″ to 6″	30,000
Dried Meat Lake	3″ to 6″	10,000
Gull Lake	3″ to 6″	15,000
Hastings Lake	3″ to 6″	20,000
Lacombe (Jackfish) Lake	3″ to 6″	15,000
Sylvan Lake (3 plantings)	3″ to 6″	57,000
TOTAL		162,000

TOTAL DISTRIBUTION

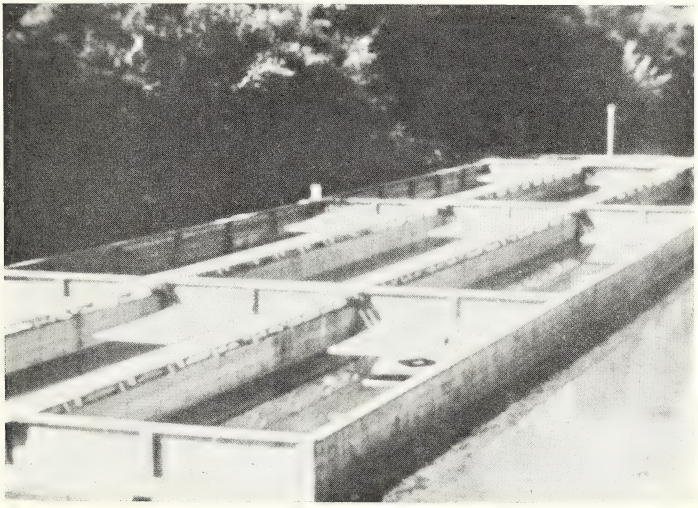
Trout:		
Rainbow Advanced Fry	50,000	
Rainbow, No. 1 Fingerlings	339,700	
Rainbow, No. 2 Fingerlings	213,950	
Rainbow, No. 4 Fingerlings	701,000	
Rainbow, Yearlings	12,700	
Rainbow, Tagged	100	
		1,317,450
Lock Leven, No. 1 Fingerlings		368,000
Speckled, No. 1 Fingerlings		144,950
Cutthroat, Advanced Fry	8,500	
Cutthroat, No. 4 Fingerlings	6,000	
		14,500
Distribution of Trout		1,844,900
Distribution of Perch		162,000
TOTAL		2,006,900

By arrangements with Mr. K. G. Drew, a spawning camp was established at the Kananaskis Lakes and produced satisfactory results. Due to favourable weather and good transportation conditions it was found possible to deliver a number of the eggs in a green condition to the hatchery at Calgary, and the remainder were brought to the eyed stage at the camp. The total number of eggs received by the Department was 337,560 of which 259,060 were rainbow

and 78,500 were cutthroat. It was noted that there was a lack of male fish particularly in the cutthroat variety, with the result that a large number of the cutthroat eggs could not be properly fertilized. The fry hatch from the rainbow eggs was particularly gratifying in that they produced a large and strong species which later developed into rapidly growing fingerlings.

A new feature worthy of note, and which has been of much assistance to the Department, was the establishment of a trout hatchery in the grounds of the Calgary Brewing and Malting Company, Limited, and the construction of a number of rearing ponds in a floral setting. The co-operation of the Company has been greatly appreciated, and the work carried on has been of interest and has proved instructive to many thousands of visitors.

Inglewood rearing ponds were remodelled during the period under review and once again proved very satisfactory.



Trout-rearing Ponds, Inglewood, Calgary

The Claresholm Fish and Game Association and the Cardston Fish and Game Association maintained rearing ponds in their respective localities quite successfully, distribution from the Claresholm ponds being made in the late summer, while the Cardston ponds carried their fingerlings through the winter.

Angling in the Highwood watershed was quite good during the season, but it was noticeable that the average size of the fish taken was smaller than in former years. A number of large fish were taken in the vicinity of High River and also in the waters west of Cataract Creek. Unfavourable water conditions prevailed during the season; the rivers and creeks becoming very low on account of hot and dry weather until the last week of August when wet weather set in. Beaver have increased along the creeks in this district in the last three years and are doing splendid work in the conservation of water on the smaller streams during dry periods.

In the Willow Creek district angling was very satisfactory, especially in the early part of the season.

Eyeing Station, Kananaskis

Pincher Creek and Waterton River districts afforded good sport during the season, though the usual number of anglers in the Waterton district were not apparent.

The Bow and Kananaskis watersheds provided good fishing throughout most of the season and many catches of fine Loch Leven were reported from the district west of Red Deer. Angling in other portions of the province showed little change from former years.

A biological survey of Lesser Slave Lake was undertaken during the period under review by Dr. R. B. Miller of the University of Alberta, and it is expected that this very necessary fact-finding programme will be continued and extended to other waters in the ensuing year.

GAME BRANCH

The year 1941-42 was one of change for the Game Branch. At the beginning of the year the Branch was transferred from the Department of Agriculture to the Department of Lands and Mines, where it had previously been in the year 1936-37 for a period of one year.

Another important change which took effect during the year now under review was the re-writing of The Game Act of 1932 and amendments into the present Game Act of 1941. In revising the act every effort was made to amalgamate the sections dealing with various branches of the work into separate groups. At the same time an attempt was made to simplify and reclassify clauses in the act for the benefit of its enforcement, having in mind difficulties which had arisen from time to time in past years. Particular attention was paid to the defining of certain phraseology or terms which are used in connection with fur, game, fur farming and trapping. There was also an attempt made to simplify, as far as possible, the meaning of the act, so that the general public could become more conversant with the clauses thereof. It was felt that in this

way people would have less opportunity for committing infractions through ignorance as to its meaning.

Some of the principal points which were clarified under the new act are as follows:—

1. The words "close season" and "open season" were defined so that there would be no ambiguity in interpretation.
2. A definition was inserted giving the difference between the term "muskrat den" and the term "muskrat house".
3. A certain amount of leniency was allowed in the hunting of coyotes in order that they may be chased by means of automobiles. The coyote being considered in certain parts of the province as a pest, it was found necessary to supply this means of hunting to assist in the eradication of this animal.
4. Steps were taken to prevent shooting across main and secondary highways as this practice had become a menace to the travelling public.
5. A change was made in the privilege granted to resident farmers, and their shooting of birds without a licence was restricted within certain well defined zones. This led to a more equitable distribution of the available game and simplified enforcement.

When the regulations were drafted under the new Game Act a great deal of care was taken to see that the policy carried out in the preparation of this act should be also followed in the preparation of the regulations. Every effort was made to clarify all points which had from time to time in the past been subject to discussion, and every effort was made to simplify, as much as possible, the interpretation of the regulations and the enforcement of them.

The principal changes in the new regulations are as follows:—

1. The area in Southern Alberta set aside for the shooting of elk was materially increased by including a section of territory from the Carbondale River to the Crowsnest-Macleod branch of the Canadian Pacific Railway.
2. New sections were placed in the regulations to allow for the training of bird dogs, and a new section was also placed in the regulations to allow for the holding of field trials. It was felt that this province should not be behind other provinces in this respect, and that people from outside points should be encouraged to take advantage of the ideal terrain in Alberta with regard to the training of their dogs.
3. In past years a non-resident hunter has been required to pay a fee for the export of game or game heads which he wished to take home with him. It was felt that the large fee required to be paid by these people should include the privilege of taking their trophies home without any extra cost, and the regulations were changed accordingly so that this privilege should be granted.
4. It was found desirable to make a number of changes in the fur farm regulations for the further benefit of this industry.
5. The pheasant had increased during this year to the extent that it was felt that a special permit was not now required for the taking of this bird, and pheasant shooting was included in the game bird licence to avoid extra cost to those persons wishing to hunt this bird.
6. It was found also that the number of elk in the province had increased to the extent that it should not now be necessary to charge an extra fee for the taking of this animal within the two elk areas described in the regulations, and elk are now allowed to be hunted under the general game licence.

Moose at Kananaskis

At the commencement of the year 1941-42 it was decided, as a measure of conservation, that a large portion of the fur bearing part of the province should be organized under a system of trap line and trapping area registrations. For the past seventeen years registration of trapping areas had been in effect on the forest reserves throughout the province and had proved very satisfactory not only from the standpoint of conservation of game but had materially reduced the fire hazard in these areas by making each man morally responsible for fires in his particular trapping area.

For three years prior to this particular season a similar system had been in the process of organization throughout the far northern part of the province, north of the 27th baseline, and here also the good effect obtained was so great as to justify the extension of this system.

The area north of the Brazeau and North Saskatchewan rivers was selected as taking in the greater part of the fur bearing areas within the province, and a system of registration of trap lines in this area was inaugurated. It was felt that the general trapping licence would have to continue for a period of approximately two years to allow for a transition stage from the general trapping licence, which allowed trapping in any territory, to the setting up of registered trap lines, which gave the holder thereof exclusive rights on his own territory. Under this system each area is carefully farmed by the trapper, whereas in the past many areas had been denuded of fur by itinerate trappers who felt that there was little desire to conserve fur with the possibility of having someone else come in on the area and take any surplus which remained. It is expected, as the system comes gradually into force, that the benefits derived by the qualified trapper will be great and the conservation of fur and also of timber resources will be greatly benefited. If the forest cover continues to be burned over vast areas by the carelessness of the itinerate trapper, that section of same on which fur can be propagated will be reduced in fur production by the amount which is burned each year. If the part destroyed by fire can be reduced it stands to reason that an increase in fur will be apparent. Barren areas do not contain game.

Mule deer group at the mouth of the South Kootenay Pass

Another change, and a very important one, which resulted from the transfer of the Fish and Game branches to the Department of Lands and Mines, was the introduction of a closer co-operation between these branches and that of the Forestry Division. It is in the forested areas where game and fur abound, and the protection of game and of forests represent duties which are very similar. Such co-operation resulted in it becoming immediately possible to secure assistance from a large number of forest rangers throughout the foothills, the mountains and the northern part of the province in the supervision of fish and game and the activities resulting from them. It was also found that where a duplication existed in the location of rangers and guardians, it was possible to eliminate these and allow for the spreading of the personnel to cover areas which had heretofore been given little supervision. It was also possible to give intensive supervision to large areas throughout the province, where in the past supervision of any kind had of necessity been somewhat sketchy due to the small number of personnel available to carry on this large task.

At the very commencement of the administration of the Game Branch by this Department it was felt that there should be close association between the Game Branch, the Provincial Fish and Game Association with its affiliated local associations, and with the Zoological Department of the University of Alberta and its very able head, Doctor William Rowan. As the act and regulations were redrafted the Association and Doctor Rowan were consulted from time to time and their able assistance in suggesting ways and means of improving our administration was very much appreciated. These two sources of information were referred to at all times when changes were in prospect with regard to game activities. When those parts of the act and regulations dealing with fur farms were considered, the fur farm organizations were very helpful in assisting in the drafting of certain sections in view of their interest in the proper handling of their affairs by this Department. An expression of appreciation is also extended to the fur dealers for their able assistance in the drafting of that part of the regulations which deals directly with their affairs.

One very important change which took effect in this year was the introduction of a system of sealing beaver pelts. For a number of years a system of stamping beaver pelts had been in effect, but it was found increasingly difficult with the small staff at the disposal of the Game Branch to give service to the vast outlying points of the province where trappers wished to dispose of beaver pelts. A study was made of the subject and it was decided that a seal similar to that used on the railway would give a much more flexible system of handling this very valuable pelt than stamping by hammer. It was felt that the possibility of bootlegging of this fur would be practically eliminated under this system. The seals were carefully marked denoting that they were the property of the Game Branch of the Government and they were serially numbered so that their distribution to various points could be checked against the returns of fur finally coming from these points to the central buying agencies.

The introduction of the sealing of beaver was followed immediately by a closer check on the movement and purchase of fur. It was felt that the trapper and buyer both needed protection and a closer supervision throughout the year did give this protection to both of these parties.

With the transfer of the natural resources to the province in 1931, certain adjustments were made along the boundary between Banff and Jasper Park and the provincial forest reserves. The areas taken from the Park at that time and included within the forest reserves automatically became game preserves under the Game Act. It was found that some of these areas were well defined and the hunting public was able to locate the boundaries and know when they had entered them. There were, however, numerous sections in the back parts of the forest reserves which were not well defined, with the result that hunters were finding themselves accidentally within game preserves by reason of the fact that the areas were not well defined. It was felt, that with the very large natural game preserve in the national parks immediately adjacent to the forest reserves, that it would be possible to eliminate the small areas which were giving trouble and still have an ample supply of game migrating from the national parks.

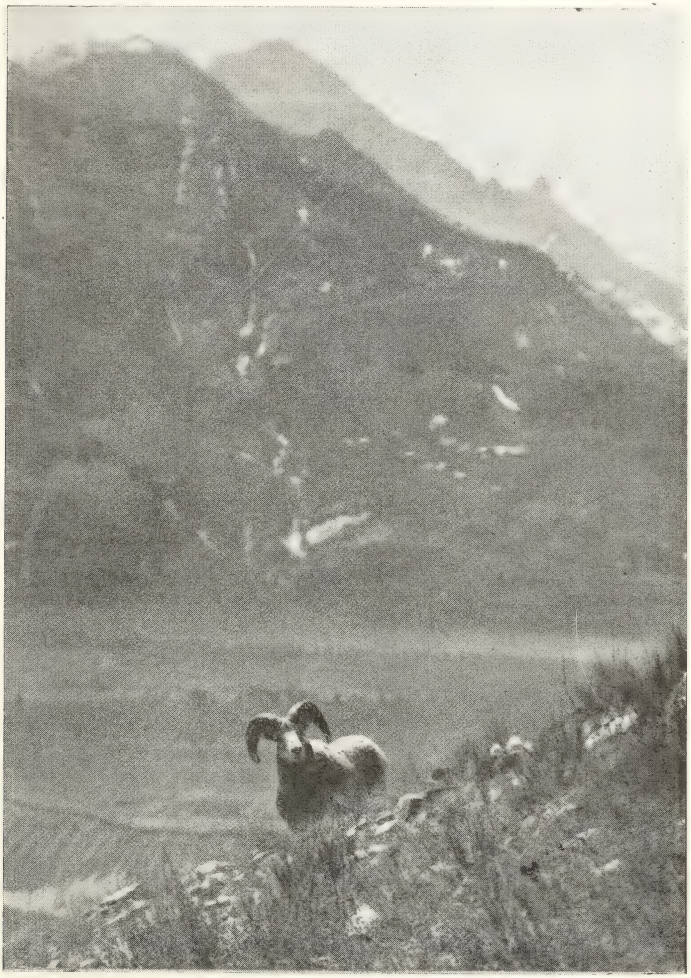
Pheasants had increased to a large extent in the Brooks area and also, but to a smaller extent, in the area adjacent to the City of Edmonton. It was decided, therefore, that the season on this bird should be extended and the daily bag limit was also extended during this year. The extension, as far as the Brooks area was concerned, was found to have little effect on the pheasant population, and it was found desirable to further extend the season in that area by doubling its length.

The crow and magpie competitions which had been carried on for the past number of years were continued in part. The amount of funds made available for such campaign was limited by reason of the immense increase in the amount of bounty being paid for cougar and wolves. It was, therefore, decided that with the small amount of funds available that the competition should be confined to schools and school children, and this was carried out. It is regrettable that incidents arose in connection with this campaign that will make it necessary to eliminate it in years to come and some other system of eradication of these predatory birds will have to be organized.

Shortly after the beginning of the year discussions were carried on between the Game Branch and the fur farmers organization with a view not only to the setting up of better regulations, but also to obtaining closer supervision of this fast growing industry. An immediate attempt was made by the Department to secure the services of a qualified fur farm inspector. The Department had in mind the selection of a man qualified in the selection of breeding stock, the classification of fur and, at the same time, to be of assistance to the fur farms in their feed problems and be qualified to assist them in any outbreak of disease throughout the industry. It was found impossible, with the funds available, to

interest any person with the necessary qualifications to fill such position, although enquiries were made throughout the entire Dominion. In the meantime, through the assistance of the Provincial Laboratory of the Department of Agriculture and by the supervision of the game officials, the most vital work in this connection was carried on.

A very successful live animal show was held in the City of Calgary during the year at which a large number of competitors showed their stock. This show attracted a great deal of attention, not only from the fur farming industry but from the general public. This was followed a short time later by a very successful pelt show in the City of Edmonton at which it was found that the quality of furs displayed had increased enormously during the past three or four years.



"A Ram with a Background," South Kootenay Pass

Another change which was put into effect in this particular year was the supplying of identification cards to game inspectors and game guardians throughout the province. Prior to this time the game badge had acted as the authority under which the provincial game guardians acted and, in view of the fact that large numbers of these badges had been distributed to voluntary game guardians, who were either inactive or not qualified to act, it was felt necessary that the salaried game guardians should be supplied with identification cards similar to those supplied to R.C.M.P. constables.

Statistical information, relative to the administration of the Game Branch during the period under review, is given as follows:—

CONVICTIONS UNDER THE GAME ACT, JULY 1, 1941 TO JUNE 30, 1942

Number of Convictions	173

CONFISCATED FURS

Amount realized from the sale of confiscated furs, during period April 1, 1941 to March 31, 1942	$3,031.96

TRAP-LINE REGISTRATION

(April 1, 1941 to March 31, 1942)

Registered Trap-line Certificates issued outside of Forest Reserves, 313 at $10 each	$3,130.00
Registered Trap-line Certificates issued free of charge to Treaty Indians, 159.	
Registered Trap-line Permits, on Forest Reserves, 131 at $10.00 each	1,310.00
Registered Trap-line Permits, on Forest Reserves, issued free to Treaty Indians, 23.	
	$4,440.00

FUR DEALERS' LICENCES, ETC.

(April 1, 1941 to March 31, 1942)

Resident Fur Dealers' Licences, to carry on business in a City and elsewhere than in a City	$6,390.00
Non-Resident Fur Dealers' Licences, to carry on business in Province:	
9 at $100.00	900.00
1 at 50.00	50.00
6 at 5.00	30.00
Resident Travelling Fur Purchasing Agent's Licences, 89 at $25.00	2,225.00
Tanner's Licences, 3 at $10.00	30.00
Furrier's Licences, 17 at $10.00	170.00
Resident Travelling Fur Dealers (North of Township 96), 4 at $15.00	60.00
	$9,855.00

MUSKRAT AND BEAVER PERMITS ISSUED, SEASON 1941-1942

Muskrat Permits issued	335
Muskrat reported taken	14,217
Beaver Permits issued	195
Beaver reported taken	1,000

BOUNTY ON TIMBER WOLVES, TIMBER WOLF PUPS AND COUGAR

During the period April 1, 1941 to March 31, 1942, the following bounty was paid:	
716 Timber Wolves at $10.00	$7,160.00
57 Timber Wolf Pups at $5.00	285.00
36 Cougars at $20.00	720.00
	$8,165.00

AGRICULTURAL PESTS COMPETITION, 1941

Statement as to the result of the competition carried on for the destruction of crows and magpies during the year 1941:

School Children:	
Crows and Magpies	37,772
Crows and Magpies' Eggs	69,613

AMOUNT PAID IN COMPETITIONS

Competition No. 1	$ 200.00
Competition No. 2	1,000.00
TOTAL	$1,200.00

ALBERTA FUR PRODUCTION

Season July 1, 1941 to June 30, 1942

Kind of Fur	Total No. of Pelts	Average Value per pelt	Total Value of Pelts
Badger	5,004	$ 7.00	$ 35,028.00
Bear	166	2.00	332.00
Beaver	3,438	24.90	85,606.20
Ermine	526,269	1.30	684,149.70
Fox (Silver)	16,296	23.31	379,859.76
Fox (Cross)	6,567	15.21	99,884.07
Fox (Red)	14,789	10.74	158,833.86
Fox (Blue)	534	16.97	9,061.98
Fox (White)	16	33.43	534.88
Lynx	772	41.43	31,983.96
Mink	76,090	10.13	770,791.70
Muskrat	250,845	2.08	521,757.60
Otter	99	15.75	1,559.25
Rabbit	5,791,077	.08	463,286.16
Skunk	33,269	2.70	89,826.30
Squirrel	4,967,933	.32	1,589,738.56
Wolf (Coyote)	18,763	12.55	235,475.65
Wolf (Timber)	505	7.76	3,918.80
Wolverine	14	10.00	140.00
Fitch	367	1.25	458.75
House Cats	833	.35	291.55
Raccoons	38	3.00	114.00
Wild Cats	2	1.50	3.00
	11,713,686		$5,162,635.73

FUR FARMS—EXEMPTIONS ISSUED

Fox Silver	15,654	$ 364,894.74	Muskrat	4,558	$ 9,480.64
Fox, Cross	1,219	18,540.99	Beaver	68	1,693.20
Fox, Red	573	6,154.02	Rabbit	2,215	177.20
Fox, Blue	532	9,028.04	Nutria	81	40.50
Fitch	170	212.50			
Mink	71,752	726,847.76		97,130	$1,140,934.99
Coyote	308	3,865.40			
Number of fur-producing animals killed for pelts					97,130

FUR FARMS—NUMBER OF ANIMALS

		Pelt Valuation			Pelt Valuation
Silver Fox	20,982	$ 488,880.60	Muskrats	5,469	$ 11,375.52
Fox, Cross	1,535	23,332.00	Beaver	334	8,350.00
Fox, Red	688	7,568.00	Rabbit	2,686	174.88
Fox, Blue	653	11,101.00	Nutria	206	216.30
Fitch	381	476.25	Marten	66	2,640.00
Mink	100,488	1,017,943.45	Lynx	4	180.00
Raccoon	28	70.00			
Coyote	72	900.00		133,600	$1,573,248.00
Badger	8	40.00			

LICENSED ALBERTA FUR FARMERS, SEASON 1941-42

Fox Farms	305	Nutria	16
Mink	831	Marten	2
Muskrat and Beaver	18	Lynx	1
Fitch	17		
Raccoon	3	Number of Licensed Fur Farmers	1,195
Badger	2		

Mining Lands Administration

REPORT OF THE SUPERINTENDENT OF MINING LANDS, J. W. HAMILTON

A marked increase was shown in production of coal and petroleum for the calendar year of 1941 over the previous year. The output of coal exceeded that of last year by almost 765,000 tons and the increase in petroleum was more than 1,400,000 barrels.

Production totals of Alberta's minerals secured during the calendar year 1941 were as follows:—coal, 6,970,064 tons; petroleum, 9,908,643 barrels; natural gas, 28,305,429 thousands of cubic feet; salt, 16,610 tons; sodium sulphate, 8 tons; cement, 492,515 barrels; lime, 17,950 tons; sand and gravel, 956,484 tons; stone, 7,942 tons; gold, 215 fine ounces and silver, 21 fine ounces.

The total value of the minerals produced was $37,283,093 of which coal was valued at $19,337,420; petroleum, $13,809,708; natural gas, *$1,415,271; salt, $166,100; sodium sulphate, $32; clay products, $952,144; cement, $985,030; lime, $151,296; sand and gravel, $433,504; stone, $24,303; gold, $8,277 and silver, $8.

Mineral rights, solid, liquid and gaseous, the property of the Crown in the right of the province, are not sold but are disposed of by lease, reservation, permit or grant for limited periods of time. The Division is responsible for the administration of regulations governing these rights on both provincial and school lands. Revenue is obtained from fees, rentals, bonuses and royalties and during the fiscal year a total of $1,209,643.06 was received.

Considerable activity was again shown under the regulations governing the reservation of petroleum and natural gas rights for geological and/or geophysical examination, including any investigation relating to subsurface geology, and during this fiscal year more than 4,000,000 acres were granted under reservation. Before commencing or undertaking any geophysical operations, or the examination of the subsurface geology, in the province, a licence must be procured from this Division at a fee of $25.00. The regulations governing these licences were established on the 28th day of May, 1941, by Order in Council, No. 727-41, and during the balance of the fiscal year 12 licences were issued.

The holder of each petroleum and natural gas lease on which a well had not been drilled was notified by letter, dated August 23, 1941, that machinery and equipment suitable for carrying on drilling operations must be upon the lands included in the lease on or before the first day of September, 1942, and that the drilling of a well thereon must be commenced by that date for the recovery of oil or natural gas. Where a lessee held more than one petroleum and natural gas lease, and proposed commencing drilling before September 1, 1942, he was permitted to consolidate for operation and expenditure and to install machinery and equipment on one or more of the locations included in such consolidation.

During the year 440 applications for mineral rights were made at the offices of the Mining Recorders at Edmonton, Calgary and Peace River which required the preparation of a similar number of files in the Division. Several inquiries were made daily as to the availability of mineral rights, mostly for petroleum and natural gas leases or reservations, by personal application at the office or by correspondence. The Division dispatched a total of 22,535 letters during the year under review.

*Based on well-head valuation of 5 cents per Mcf.

The natural resources of Alberta were transferred from the Dominion Government to the control of the Government of Alberta on October 1st, 1930, and the following tabulation shows the numbers and acreages of the various leases issued from that date to March 31st, 1942:

Type of Lease	Active at date of transfer	Issued	Reinstated	Divided	Cancelled	Renewed	Active at March 31st, 1942
Petroleum and natural gas	18,863	9,300	91	366	25,230	177	3,213
Petroleum and natural gas, crown reserve	5	20	....	....	25	....	....
Coal, provincial lands	620	429	2	4	591	150	314
Coal, school lands	60	27	1	....	55	7	26
Quarrying	45	61	....	....	50	....	56
Quartz mining	4	....	....	....	....	....	4
Salt	1	1	....	....	1	....	1
Bituminous sands	4	2	....	....	4	....	2
Miscellaneous	1	3	....	....	1	....	3
Dredging	32	8	....	....	40	....	....
TOTALS	19,635	9,851	94	370	25,997	334	3,619

ACREAGE CONTAINED IN ABOVE LEASES

Type of Lease	Active at date of transfer	Issued	Reinstated	Cancelled	Renewed	Active at March 31st, 1942
Petroleum and natural gas	2,454,802	1,863,145	18,122	3,591,861	22,697	721,511
Petroleum and natural gas, crown reserve	6,160	22,561	.....	28,721	.....	.....
Coal, provincial lands	236,984	128,950	85	177,103	89,208	99,708
Coal, school lands	9,570	2,473	53	6,117	1,464	4,515
Quarrying	1,675	633	.....	1,044	.....	1,264
Quartz mining	182	.....	.....	.....	.....	182
Salt	200	6,721	.....	200	.....	6,721
Bituminous sands	3,952	2,063	.....	5,451	.....	564
Miscellaneous	3,560	323	.....	10	.....	3,873
TOTALS	2,717,085	2,026,869	18,260	3,810,507	113,369	838,338
Dredging (in miles)	145	24	.....	169	.....	.....

STATEMENT OF BUSINESS TRANSACTED, 1941-42—PETROLEUM AND NATURAL GAS

	Number	Acres
Leases issued	307	67,502
Leases cancelled and relinquished	1,124	258,094
Leases reinstated	32	5,924
Reservations granted	68	4,058,116
Reservations cancelled and relinquished	26	935,821
Fees, rentals and bonuses collected	$214,519.16	
Royalties collected	658,898.75	
TOTAL	$873,417.91	

COAL

	Number	Acres
Leases issued on provincial lands	66	15,042
Leases cancelled and relinquished on provincial lands	44	4,064
Leases reinstated on provincial lands	1	45
Leases issued on school lands	1	40
Leases cancelled and relinquished on school lands	1	20
Domestic permits issued	22	....
Fees and rentals collected	$ 84,830.31	
Royalties collected	239,627.78	
TOTAL	$324,458.09	

QUARRYING

	Number	Acres
Leases issued	8	50
Leases cancelled and relinquished	2	38
Sand, stone and gravel permits issued	29	....
Fees and rentals collected	$1,412.99	
Royalties collected	3,498.58	
TOTAL	$4,911.57	

MISCELLANEOUS

	Number
Bituminous sands leases issued	....
Bituminous sands leases cancelled	....
Permits to collect bitumen issued	2
Alkali permits issued	1
Quartz mining claims granted	11
Quartz mining certificates of work issued	1
Powers of Attorney (quartz) filed	2
Placer claims granted	26
Powers of Attorney (placer) filed	1
Bar-digging permits issued	....
Salt leases issued	....
Geophysical licences issued	12
Fees, rentals and royalties collected	$6,855.49

ASSIGNMENTS REGISTERED, 1941-42

Nature	Number
Petroleum and natural gas	336
Coal, provincial lands	23
Coal, school lands	....
Quarrying	3
TOTAL	362

Petroleum and Natural Gas

Development of Leases.—The regulations provide that approved expenditures incurred in actual development of petroleum and natural gas rights, acquired under lease or reservation, may be accepted in satisfaction of rentals which otherwise would be payable in cash. During the fiscal year under review, rentals due the province amounting to $303,629.22 were satisfied from such expenditures and so reduced the revenue of the Division by that amount. The total revenue received in cash for fees, rentals and bonuses was $214,519.16 which, added to the expenditures accepted in lieu of rentals, makes a total of $518,148.38.

Disposal by Public Tender.—Bonuses amounting to $1,038.50 were accepted during the fiscal year at sales by public tender of petroleum and natural gas rights formerly comprised in cancelled leases or reservations.

Number and Area of Leases. — New regulations were established by Order in Council dated the 26th day of August, 1941, and numbered O.C. 1213-41, governing the disposal of petroleum and natural gas rights in provincial lands, including those lands of a class designated school lands, and, as a consequence, school lands are now administered under the same regulations as provincial lands.

During the year 307 petroleum and natural gas leases were issued covering an area of 67,502 acres and at the close of the fiscal year a total of 3,213 leases were active containing an area of 721,511 acres.

Reservations.—There was considerable activity under the regulations governing the reservation of petroleum and natural gas rights, the property of the Crown, for geological and/or geophysical examination, including any investigation relating to sub-surface geology. Sixty-eight reservations were granted in this fiscal year covering an area of 4,058,116 acres and twenty-six reservations were cancelled containing an area of 935,821 acres leaving at the close of the fiscal year 3,681,415 acres still under reservation.

Coal

New coal leases may be granted either for the extension of existing operations or for small mines where the local market cannot be economically supplied from operating mines in the vicinity. In the fiscal year, 67 leases were issued containing 15,082 acres, being made up of new, substitutional and renewal leases. There are now 340 active leases comprising 104,223 acres.

During the current fiscal year the following quantity of coal, subject to Crown royalty, was mined:—

	Tons
Provincial lands' leases	3,013,633
School lands' leases	478,126
Coal lands' and mineral sales	990,257
TOTAL	4,482,016

Crown royalties collected on coal mined in Alberta since April 1st, 1907, are as follows:—

CROWN ROYALTIES COLLECTED ON COAL

Fiscal Year	Royalty Paid	Fiscal Year	Royalty Paid
1907-08	$ 7,621.67	1920-21	$ 190,545.80
1908-09	5,322.39	1921-22	185,436.88
1909-10	153,559.98	1922-23	171,723.83
1910-11	218,932.88	1923-24	210,389.53
1911-12	104,894.55	1924-25	148,979.10
1912-13	142,997.79	1925-26	188,277.94
1913-14	147,198.75	1926-27	218,150.10
1914-15	104,489.77	1927-28	231,757.96
1915-16	67,190.17	1928-29	254,616.27
1916-17	149,447.82	1929-30	248,083.71
1917-18	144,634.75	1930-31 (First half)*	90,052.07
1918-19	175,687.66		
1919-20	181,641.80		$3,741,633.17

	Provincial Lands	School Lands	
1930-31 (Last half)*	$105,126.51	$ 5,014.29	110,140.80
1931-32	145,170.33	6,354.09	151,524.42
1932-33	143,800.01	4,971.78	148,771.79
1933-34	193,527.82	9,520.13	203,047.95
1934-35	176,122.43	12,365.39	188,487.82
1935-36	186,691.23	19,779.76	206,470.99
1936-37	175,214.33	18,596.00	193,810.33
1937-38	158,227.11	15,159.15	173,386.26
1938-39	143,070.78	9,270.23	152,341.01
1939-40	168,802.75	7,812.78	176,615.53
1940-41	200,045.68	15,841.24	215,886.92
1941-42	216,777.95	22,849.83	239,627.78
TOTAL			$5,901,744.77

*Date of transfer of Alberta's natural resources from federal to provincial control, and date also of the creation of the Department of Lands and Mines, Alberta, October 1st, 1930.

Permits for Domestic Use.—Permits to mine coal on provincial lands by strip-mining methods for domestic use may be issued to actual settlers on payment of a fee of one dollar and royalty at the rate of ten cents a ton. Each permit expires on March 31st following its date of issue. During the year 22 permits were issued authorizing an extraction of 489 tons, none of which could be bartered or sold.

Quarrying

Three quarrying leases were issued on surveyed lands containing an area of 50 acres and five leases were issued during the fiscal year for removing gravel from the bed of the North Saskatchewan River. Extraction of 245,471 cubic yards of sand, gravel, limestone and shale from provincial lands was reported for the calendar year of 1941.

At the close of the fiscal year, 56 leases were active containing an area of 1,264 acres.

Permits.—Sand, stone and gravel permits are issued on the beds of rivers and lakes at a fee of $2.50 and a royalty of five cents a cubic yard and expire on the 30th day of November following the date of issue. In this fiscal year 29 permits were issued for the extraction of 15,695 cubic yards.

Dredging

The two dredging leases issued the previous year on the bed of the Athabaska River in townships 63 and 64, range 3, west of the 5th meridian were cancelled and no new leases were issued.

Quartz

Eleven new claims were recorded during the fiscal year in unsurveyed territory in township 14, range 3, west of the 5th meridian. The claim in the Drumheller district for the recovery of bentonite was renewed and royalty of $126.72 was paid on this claim representing 2½% of the value of the bentonite recovered.

The four quartz leases covering 181.8 acres issued by the Department of the Interior are still active.

Placer

Activity along the Athabaska River in townships 63 and 64, range 3, west of the 5th meridian, continued during the year and 18 grants were issued for staked claims. Eight other grants were issued, six along the McLeod River, one on the North Saskatchewan River and one in the Grande Prairie District. Recovery of 16.5 ounces of gold was reported during the year.

Bituminous Sands

Two leases are active at present in the McMurray area containing an area of 564 acres and two separation plants are experimenting on areas held under special development agreements. Abasand Oils Limited treated 21,731 tons extracting therefrom 19,519 barrels of crude oil, 4,190 barrels of Diesel oil and 1,142 barrels of gasoline.

Sodium Chloride (Common Salt)

This fiscal year the salt plant, operated by Industrial Minerals Limited, reported extraction of 19,015 tons of salt on which royalty at the rate of twenty cents a ton was collected. This plant is located on the lease issued in 1937 covering 6,720.82 acres.

Miscellaneous Leases

One lease for the removal of sodium sulphate (glauber salts) occurring in comparatively pure condition in sloughs and shallow lakes was cancelled leaving one still active covering an area of 22.5 acres. Production of sixteen tons was reported for the fiscal year.

Special Permits

The two annual permits for the collection of bitumen issuing from old wells in the Peace River District were again renewed. Collection of 977 gallons was reported during the year.

PETROLEUM AND NATURAL GAS

Drilling Activity and Statistical Data

(Development in 1941-42)

Petroleum production for the fiscal year 1941-42 totalled 10,167,836 barrels, showing an increase of 996,905 barrels over that of the previous fiscal year.

The following is a review of drilling activity and statistical data covering this period.

TURNER VALLEY COMPLETIONS DURING THE YEAR

Arranged by date of reaching final depth

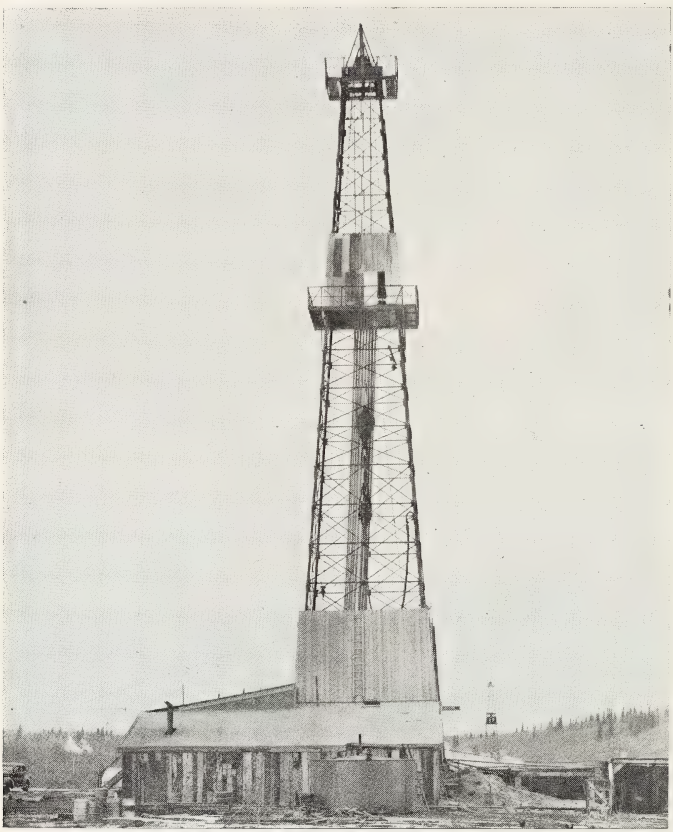
Well	*Location*	*Depth*	*Date Started*	*Drilling Finished*
Calmont Northwest 3	* 4 of 18, 19-2	8060′	Nov. 17, 1940	Apr. 9, 1941
Regal 1	14 of 24, 19-3	8270′	Sept. 18, 1940	Apr. 9, 1941
Foothills 8	12 of 27, 20-3	8273′	Nov. 18, 1940	Apr. 16, 1941
Northwest Hudson's Bay 5	11 of 8, 18-2	8487′	Oct. 27, 1940	Apr. 27, 1941
Southwest 5	2 of 8, 19-2	6955′	Jan. 11, 1941	May 2, 1941
Lion Sunray 1	8 of 13, 19-3	8267′	Aug. 29, 1938	May 14, 1941
Major Oil Investments 1	5 of 34, 20-3	7593′	Sept. 11, 1940	May 16, 1941

Royalite 55	7 of 7, 19-2	7643′	Jan. 27, 1941	May 20, 1941
Atlas 1	1 of 24, 19-3	8074′	Oct. 30, 1940	May 21, 1941
Twin Valley 2	10 of 13, 19-3	8470′	Dec. 11, 1940	May 25, 1941
Harris 3	16 of 3, 20-3	8927′	Oct. 3, 1940	June 1, 1941
Anglo Canadian 9	14 of 7, 19-2	7589′	Dec. 8, 1940	June 7, 1941
British Alberta Brown 2	2 of 24, 19-3	8395′	Dec. 12, 1940	June 14, 1941
Royalite 47	15 of 15, 20-3	8826′	Dec. 19, 1940	June 22, 1941
Home Millarville 7	14 of 33, 20-3	8630′	Dec. 6, 1940	June 23, 1941
Royalite 56	12 of 14, 20-3	7912′	Feb. 14, 1941	June 30, 1941
Home Millarville 8	16 of 15, 20-3	8441′	Dec. 16, 1940	July 5, 1941
British Alberta Brown 1	14 of 13, 19-3	8634′	Nov. 18, 1940	July 18, 1941
Miracle Royalties 1	3 of 4, 21-3	8010′	Oct. 14, 1940	July 31, 1941
Empress 1	5 of 2, 20-3	8787′	Nov. 14, 1940	Aug. 5, 1941
Calmont Northwest 4	2 of 18, 19-2	7268′	April 16, 1941	Aug. 15, 1941
Royalite 57	2 of 7, 19-2	7765′	May 7, 1941	Aug. 18, 1941
Royalite-Model 1	1 of 22, 20-3	7623′	April 22, 1941	Aug. 19, 1941
Argus 2	3 of 25, 19-3	7858′	Mar. 26, 1941	Aug. 22, 1941
Ace Royalties 1	5 of 4, 21-3	8834′	Jan. 12, 1941	Sept. 4, 1941
Royalite 59	15 of 7, 19-2	7313′	May 26, 1941	Sept. 8, 1941
Renown 1	8 of 24, 19-3	7969′	Mar. 4, 1941	Sept. 12, 1941
Major Oil Investments 2	12 of 4, 21-3	8311′	Jan. 29, 1941	Sept. 12, 1941
Northwest Hudson's Bay 6	7 of 8, 18-2	8235′	May 2, 1941	Sept. 20, 1941
Home Millarville 9	9 of 15, 20-3	8478′	Mar. 30, 1941	Oct. 1, 1941
Okalta 11	10 of 24, 19-3	8220′	Feb. 6, 1941	Oct. 7, 1941
Alberta Pacific Royalties 1	14 of 6, 19-2	8334′	Mar. 17, 1941	Oct. 14, 1941
Major Oil Investments 3	1 of 8, 21-3	8120′	Jan. 14, 1941	Oct. 15, 1941
Drillers & Producers 1	13 of 7, 19-2	8042′	April 26, 1941	Oct. 28, 1941
Royalite 58	7 of 22, 20-3	7787′	June 27, 1941	Nov. 13, 1941
United B.A. 1	16 of 12, 19-3	8418′	May 10, 1941	Nov. 19, 1941
Royalite 60	5 of 14, 20-3	8216′	July 5, 1941	Dec. 7, 1941
Southwest 6	5 of 8, 19-2	7000′	Aug. 23, 1941	Dec. 7, 1941
Royalite 61	5 of 19, 19-2	7540′	Sept. 6, 1941	Dec. 22, 1941
Major Oil Investments 4	8 of 8, 21-3	7836′	May 30, 1941	Jan. 13, 1942
Foothills 10	2 of 4, 21-3	8069′	Aug. 25, 1941	Jan. 19, 1942
Drillers & Producers 3	3 of 7, 19-2	8152′	July 21, 1941	Jan. 19, 1942
Atlas British Dominion 2	4 of 17, 21-3	8710′	Mar. 5, 1941	Feb. 1, 1942
Anglo Canadian 11	5 of 25, 19-3	8119′	Aug. 23, 1941	Feb. 2, 1942
Miracle Royalties 2	6 of 4, 21-3	7753′	Sept. 3, 1941	Feb. 14, 1942
Foothills 11	11 of 4, 21-3	7422′	Sept. 28, 1941	Feb. 23, 1942
Royalite 62	3 of 22, 20-3	8990′	Sept. 14, 1941	Feb. 26, 1942
Southwest 7	13 of 8, 19-2	6940′	Dec. 12, 1941	Mar. 31, 1942

*Note:—Legal sub-division 4 of section 18, township 19, range 2.

EAST FLANK OUTCROP IN AREA NORTH OF TURNER VALLEY

Photo by H. Pollard, Calgary



DRILLING IN AREA NORTH OF TURNER VALLEY

Photo by H. Pollard, Calgary

Drilling Activity Outside Turner Valley

Dina Field.—Dina Omega 1—in 14 of 9, 45-1 W.4, was drilled to 1710′ without obtaining production of oil or gas.

Dina Omega 2—in 12 of 9, 45-1 W.4, was drilled to 1981′ without obtaining production of oil or gas.

Princess Field.—Anaconda Patricia—in 9 of 31, 20-12 W.4, was drilled to 4029′ and abandoned.

Anglo Canadian 3—in 5 of 18, 20-11 W.4, was drilled to 4001′ and abandoned.

Standard Oil of British Columbia 2—in 3 of 13, 20-12 W.4; this well completed during previous fiscal year, was reworked to exclude gas and water and considerable oil was produced.

Standard Oil of British Columbia 3—in 5 of 13, 20-12 W.4; this well was reworked and some oil was produced, but increasing water made it necessary to suspend production.

Standard Oil of British Columbia 4—in 13 of 12, 20-12 W.4, continued drilling to 3300′ and was plugged back to 3185′ and completed as a gas well.

Standard Oil of British Columbia 5—in 9 of 14, 20-12 W.4, was drilled to 3301′ and abandoned.

Standard Oil of British Columbia 6—in 5 of 27, 20-12 W.4, was drilled to 3190′ and abandoned after testing.

Standard Oil of British Columbia-McDougall Segur 1—in 3 of 11, 20-12 W.4, was drilled to 4077′ and abandoned.

Standard Oil of British Columbia-Outer Rainy Hill 1—in 1 of 23, 18-11 W.4, was drilled to 3405′ and abandoned.

Vermilion Field.—Acme 1—in 5 of 20, 50-5 W.4, drilled in 1940, was reworked and abandoned.

Acme 2—in 6 of 20, 50-5 W.4, reworked and placed on production as an oil well.

Acme 4—in 6 of 20, 50-5 W.4, was drilled to 1837′ with indications of oil and testing was in progress.

Alberta Southern 1—in 15 of 20, 50-5 W.4, resumed operations, drilled to 1794′ with testing in progress.

Anglo Canadian, Cummings 1—in 6 of 22, 48-7 W.4, was drilled to 2376′ and abandoned.

Anglo Claysmore 1—in 15 of 28, 49-7 W.4, was drilled to 2279′ and abandoned.

Conestoga 1—in 1 of 30, 50-5 W.4, actually drilled in previous year to 1861′, was placed on production as an oil well.

Flobell 1—in 12 of 29, 50-5 W.4, was drilled to 1819′ and was testing.

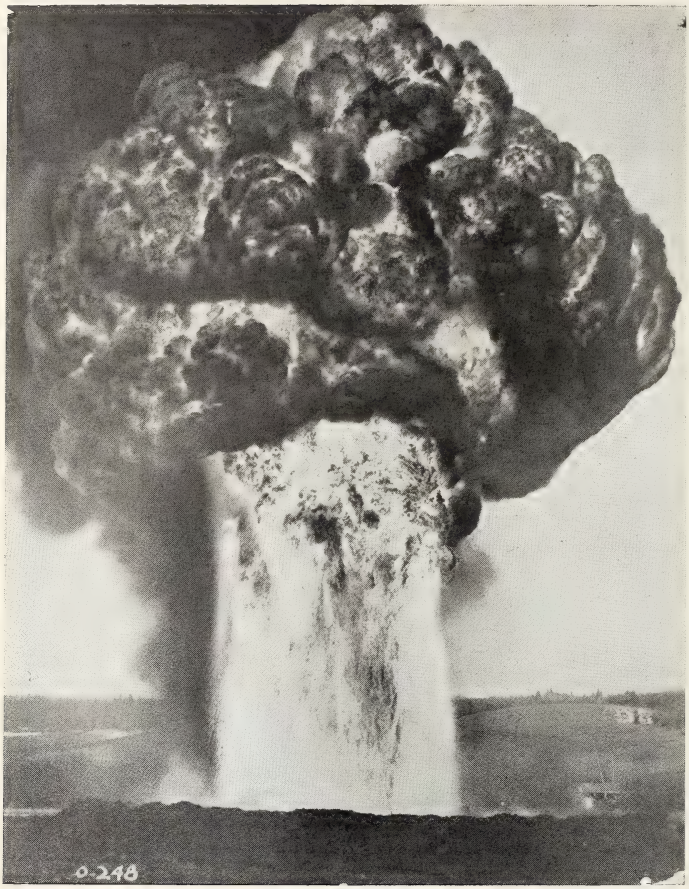
Midfield Petroleum 1—in 16 of 14, 50-6 W.4, started drilling and suspended at shallow depth.

Princeville 2—in 1 of 31, 50-5 W.4, was drilled to 1792′ and completed as an oil well. This well produces more gas with oil than is usual in this field.

Richardson G. A.—in 14 of 20, 50-5 W.4, was reworked and placed on production.

Vermilion Consolidated Oils Limited, took over a number of completed and partly completed wells.

V.C.O. 1, name changed from Graham Shane—in 1 of 14, 49-6 W.4; during the year a pipe line was laid to supply the town of Vermilion with gas.



MAJOR 4 BLOWS IN

Photo by H. Pollard, Calgary

V.C.O. 2—name changed from Graham Norton 1.

V.C.O. 3—name changed from Franco Battleview 3.

V.C.O. 4—name changed from Battleview Oils 1.

V.C.O. 5, name changed from Franco Dalton 1—in 12 of 25, 50-6 W.4, was plugged back from 2305′ to about 1810′ and tested with a small indication of oil and considerable salt water.

V.C.O. 6, name changed from Franco Hamers 1—in 16 of 19, 50-5, W.4, was tested with negative results.

V.C.O. 7, name changed from Franco Hamers 2—in 9 of 19, 50-5 W.4, was partially tested and a little oil was recovered.

V.C.O. 8, name changed from Franco Hamers 3—in 8 of 19, 50-5 W.4, was drilled to 1830′ and completed as an oil well.

V.C.O. 9, name changed from Franco Hamers 4—in 15 of 19, 50-5 W.4, was drilled to 1846′ and testing was not complete but there were indications of oil.

V.C.O. 10—in 13 of 36, 49-6 W.4, was drilled to 1998′, no oil was obtained but possibility to develop gas.

V.C.O. 11—name changed from Pacalta Battleview 1.

V.C.O. 12—in 3 of 23, 49-6 W.4, was drilled to 1874′ without obtaining production.

V.C.O. 13—in 16 of 19, 50-5 W.4, was drilled to 1863′ and testing was not completed during the fiscal year.

Western Battleview 2—in 9 of 30, 50-5 W.4, was drilled to 1853′ and completed as an oil well.

Western Battleview 3—in 4 of 29, 48-5 W.4, was drilled to 1932′, with oil showings; had not been placed on production at end of fiscal year.

Western Battleview 4—in 16 of 18, 51-5 W.4, was drilled to 1744′, with some showings of oil and gas, but not in condition to produce oil at end of fiscal year.

Wainwright Field.—Montreal-Alberta 1—in 2 of 15, 45-7 W.4, only a little work was done during the year, bottom at 4653′.

Bragg Creek Area.—Dome Oils 2—in 1 of 17, 22-6 W.5, started a diamond drill test but was unable to get below 71′ because of loose gravel.

Dome Oils 3—in 8 of 17, 22-6, W.5, a diamond drill test was started late in 1941, drilling was proceeding below 1100′ at end of fiscal year.

Brazeau Area.—Ram River 2—in unsurveyed territory in about 8 of 2, 37-11 W.5, resumed operations, reached a depth of nearly 3900′ during fiscal year.

Brooks-Tilley Area.—Canadian Western Natural Gas 7—in 16 of 20, 18-14 W.4, was drilled by Northwest Company as oil prospect to 3399′ and plugged back 1504′ for completion as gas well.

Northwest Tilley 1—in 1 of 18, 17-12 W.4, was drilled to 3208′ and abandoned.

Northwest Tilley 2—in 4 of 17, 17-12 W.4, was drilled to 3185′, with discovery of oil and testing was proceeding.

Bruderheim Area.—Clonmel 1—in 4 of 32, 55-20 W.4, was drilled to about 1000′ and operations were continuing.

Ghost River Area.—Grease Creek 2—in 7 of 13, 29-7 W.5, was drilled to 7506′ and abandoned on obtaining unfavourable geological information.

Keho Area.—Keho Dome 1—in 3 of 18, 11-22 W.4, was drilled to 3025′ and suspended for casing.

NORTH TURNER VALLEY

Photo by H. Pollard, Calgary

TURNER VALLEY TOWNSITE LOOKING NORTH

Photo by H. Pollard, Calgary

Kinsella Gas Field.—Pipe line from this field was laid to connect with line from Viking to Edmonton and 5 wells were drilled during year and all obtained a good supply of gas.

Northwestern Utilities 3—in 15 of 25, 47-11 W.4, depth 2209′.
Northwestern Utilities 4—in 5 of 35, 47-11, W.4, depth 2180′.
Northwestern Utilities 5—in 4 of 34, 47-11 W.4, depth 2171′.
Northwestern Utilities 6—in 16 of 33, 47-11 W.4, depth 2168′.
Northwestern Utilities 7—in 13 of 33, 47-11 W.4, depth 2208′.

Lacombe-Red Deer Area.—Lacombe-Red Deer 1—in 3 of 13, 40-26 W.4; a licence to drill was obtained and derrick was erected.

Lethbridge Area.—Lethbridge Petroleum and Refineries 1—in 12 of 11, 8-22, W.4, was drilled to 4378′, with some showings of water, gas and oil, and abandoned after testing.

Northwest Company, Treaty 1—in 4 of 17, 8-23 W.4 (survey of Blood Reserve), was drilled to 6074′ and abandoned after finding showings of oil which were not commercial.

Lundbreck Area.—Maxmont-Lundbreck 1—in 10 of 20, 9-2 W.5, continued operations and reached a depth of about 9300′ and drilling continued.

Medicine Hat Area.—Medicine Hat 60—in 16 of 12, 13-6 W.4, was drilled by the City of Medicine Hat to 1118′ and completed as a gas well.

Monitor Area.—McColl Frontenac 4-5-32-4—in 4 of 5, 32-4 W.4, was drilled to 3803′ and abandoned.

Oyen Area.—McColl Frontenac 16-17-29-5—in 16 of 17, 29-5 W.4, was drilled to 1485′ and operations were continuing at end of fiscal year.

Standard Oil of British Columbia 1—in 16 of 34, 26-5 W.4, was drilled to 4100′ and abandoned.

Pouce Coupe Area.—Guardian 1—in 7 of 7, 80-12 W.6, continued drilling to 6898′.

Spring Coulee Area.—Del Bonita Associated 3—in 9 of 10, 2-20 W.4, reworked and made partial test.

McIntyre Ranch 1—in 11 of 24, 3-22 W.4, was drilled to 982′ and failed to get local gas supply.

McIntyre Ranch 2—in 11 of 24, 3-22 W.4, was drilled to 650′ obtaining a little gas.

Terminal 2—in 13 of 18, 1-21 W.4, abandoned after attempting to rework.

Western Drilling, Twin River 1—in 16 of 3, 2-20 W.4, was drilled to 3969′ and plugged back to 3964′, produced a little oil.

Suffield Area.—Dept. of National Defence drilled 3 wells to supply gas requirements.

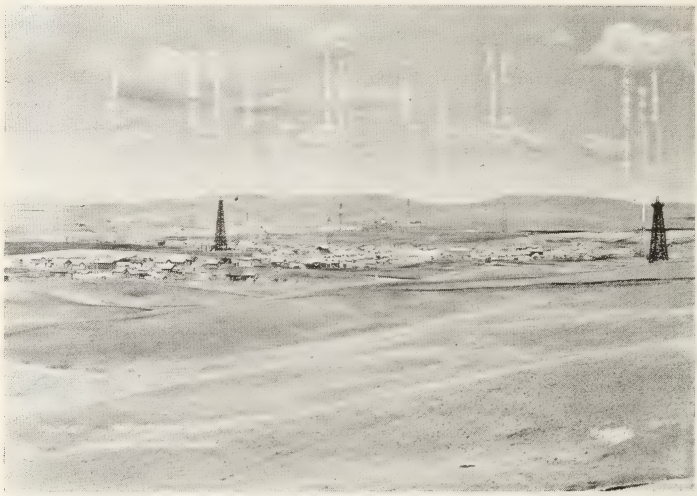
Dept. of National Defence 1—in 5 of 22, 15-9 W.4, depth 1122′.
Dept. of National Defence 2—in 13 of 15, 15-9 W.4, depth 1119′.
Dept. of National Defence 3—in 13 of 22, 15-9 W.4, depth 1137′.

Sundre Area.—Clear Oils 1—in unsurveyed territory about 8 of 2, 35-10 W.5, continued drilling to 3004′ and a partial test made.

Taber Area.—Noble 1—in 14 of 33, 8-17 W.4, started drilling and suspended at a depth of 215′.

Willow Creek Area.—Oilfield Development 1—in 7 of 7, 13-2 W.5, resumed operations and drilled to 2535′; suspended.

Royal Sun 1—in 2 of 17, 13-3 W.5, diamond drill test; drilled to 400′ with operations continuing.



LITTLE CHICAGO, TURNER VALLEY

Photo by H. Pollard, Calgary

Drilling Progress

Following the headings first used in year ending March 31st, 1941 report, drilling for oil and gas during 1941-42 is reported as in the table below. In reading the table it should be borne in mind that the basis of its preparation is to include footage made in all wells drilling in the province, regardless of whether they were completed during the period or not. This practice is made possible by the fact that all subsurface operations are reported to one central authority, and because of this the figures reflect the activity at time reported. In many United States statistics, only completions are considered, and total footage for the completed well appears in the period of completion, whereas much of the drilling may have been done previously. By the same token, much of the footage reported for Turner Valley would under the United States practice be considered "wildcat", or exploratory, in that wells have been drilled outside of proven areas.

During the fiscal year, the following footage was drilled:

	DEVELOPMENT				
	Turner Valley	Other Oil Fields	Gas Fields	Exploration	Total
April-June	104,792	14,090	8,688	8,502	136,072
July-September	83,180	14,575	4,600	9,309	111,664
October-December	88,858	15,054	2,835	22,607	129,354
January-March	116,270	9,784	.....	12,985	139,039
TOTALS	393,100	53,503	16,123	53,403	516,129

OIL PRODUCTION IN ALBERTA

Fiscal year, 1941-42

	No. of Wells	Barrels	Value of Sales
Turner Valley, oil wells, separators	*183	9,743,502	$14,052,582
Turner Valley, gas wells, separators	42	22,426	46,400
Turner Valley, natural gasoline, plants	....	305,665	659,248
Turner Valley, shallow crude	3	5,842	9,397
Turner Valley Total	228	10,077,435	$14,767,627
Red Coulee	7	11,363	8,202
Wainwright	6	12,896	8,977
Vermilion	8	29,143	18,352
Princess (2 wells, did not produce in March of 1942)	....	20,094	17,093
Miscellaneous	4	16,905	12,360
TOTAL	†253	10,167,836	$14,832,611

*Not including wells which were known to produce only gas

†Total number of wells producing as of March 1942

GAS WITHDRAWALS FROM TURNER VALLEY IN Mcf.

	During Year	To End of March, 1942
Gas Cap	16,698,452	1,063,730,452
Oil Zone	36,656,131	125,700,131
TOTAL	53,354,583	1,189,430,583
Gas Wasted	32,784,579	963,109,579

PRODUCTION AND DISTRIBUTION OF ALBERTA CRUDE PETROLEUM

Calendar Year 1941

(Quantities in barrels)

Production—	
Light crude (24° and over)	9,578,427
Heavy crude (under 24°)	37,094
Natural gasoline	293,122
Total Production	9,908,643
Distribution—	
Alberta refinery runs	5,012,610
Exports from Alberta	4,965,193
Losses and adjustments	38,499
Total Distribution	10,016,302
Withdrawals from Storage	107,659
Total Production	9,908,643
Storage beginning	455,791
Storage end	348,132

OIL USED IN ALBERTA IN 1941

(Quantities in barrels)

Supply: Refinery runs—	
Alberta crude oil	5,012,610
Imported oil	11,919
	5,024,529
Less refining and other losses, production of non-taxable products, exempt sales, fluctuation in unfinished stocks	1,396,468
Refinery production of taxable petroleum products	3,628,061
Imports of taxable petroleum products from U.S.A. and other provinces	156,166
Total supply of taxable petroleum products	3,784,227
Distribution—	
Sales in Alberta	2,854,920
Shipments to other provinces	931,425
Total Distribution	3,786,345
Deduct withdrawals from storage	2,118
Total New Supply	3,784,227
Storage, white products, beginning	660,905
Storage, white products, end	658,787

These tables of production and distribution of crude petroleum and oil used in the province are prepared from data that are more nearly complete than similar tables previously published.

GAS CONSUMPTION IN ALBERTA, 1941-42

	No. of Wells		Thousands of Cubic Feet
Calgary-Lethbridge System—			
From Foremost—to Gas Company	3		126,490
From Turner Valley	245		
Gas Company		8,050,943	
Imperial Refinery		918,825	
Bow Island Town		40,630	
Field fuel		12,039,019	
			21,049,417
Wainwright—			
Town supply	5	91,837	
Field fuel	...	11,165	
			103,002
Edmonton and towns—			
From Viking	14	2,528,573	
From Kinsella	6	2,023,591	
			4,552,164
Vermilion—			
Town supply	1		39,181
Medicine Hat—			
City system	22	1,632,345	
Industries	11	1,053,415	
			2,685,760
Redcliff—			
Domestic	4	64,950	
Industries	7	643,373	
			708,323
Brooks	6		56,487
Miscellaneous	4		164,747
TOTAL	*328		29,485,571
Waste, Turner Valley			32,784,579
Waste, other field and miscellaneous			211,997
TOTAL natural gas production			62,482,147

*Includes only wells believed to be in use during the year.

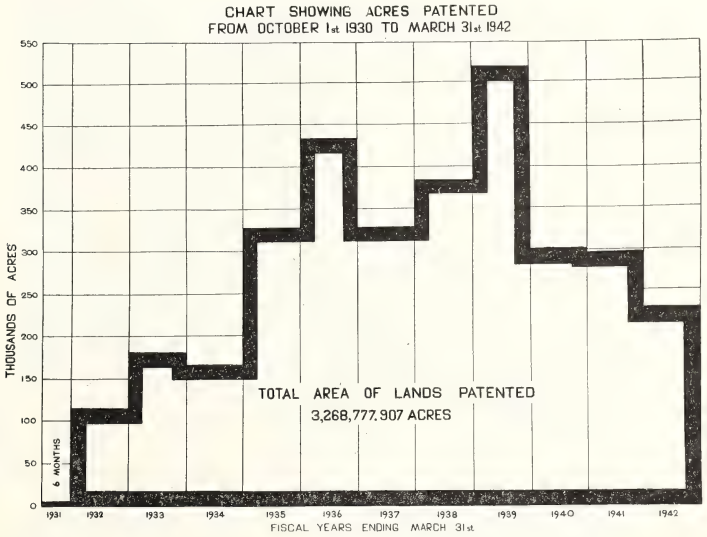
There are additional wells of value as standby to distribution systems, and a number of wells each serving a single consumer. Some other wells doubtless might be used when connected to a distribution system, but in absence of such connection, their condition and state of reserves are so little known as to make definite statements undesirable.

Technical Division

REPORT OF THE SUPERINTENDENT OF THE TECHNICAL DIVISION, T. W. DALKIN

Notifications (*Land Patents*).—More than twice the number of acres were patented in the peak year ending March 31st, 1939, than in the present year under review, ending March 31st, 1942. This year's total amounts to 229,566.606 acres and 35 subdivision lots covered by 1,563 notifications, particulars of which are as follows:—

Classification	Notification	Area (Acres)
Homesteads	1,066	165,717.846
Sales (including lots in subdivisions)	84	4,140.85
Second homesteads	258	39,172.58
Soldier grants	23	3,624.41
Special grants	26	982.12
School lands' grants	3	7.00
School lands' sales	64	9,813.46
Pre-emption sales	2	318.00
Exchanges of land	5	643.00
Exchanges of land (Special Areas)	13	3,034.83
Revivals of title	6	1,401.16
Certificates of tax sale redemption	4	641.00
Canadian Pacific Railway Company grants	1	25.03
Northern Alberta Railways Company grants	1	34.91
Northern Alberta Railways Company sales	1	3.53
Canadian Northern Western Railway Company sales (Special Areas)	1	1.93
Grand Trunk Pacific Railway Company grants	1	.....
Grand Trunk Pacific Railway Company sales	1	3.21
Canadian Northern Railway Company sales (Special Areas)	3	1.74
TOTALS	1,563	229,566.606

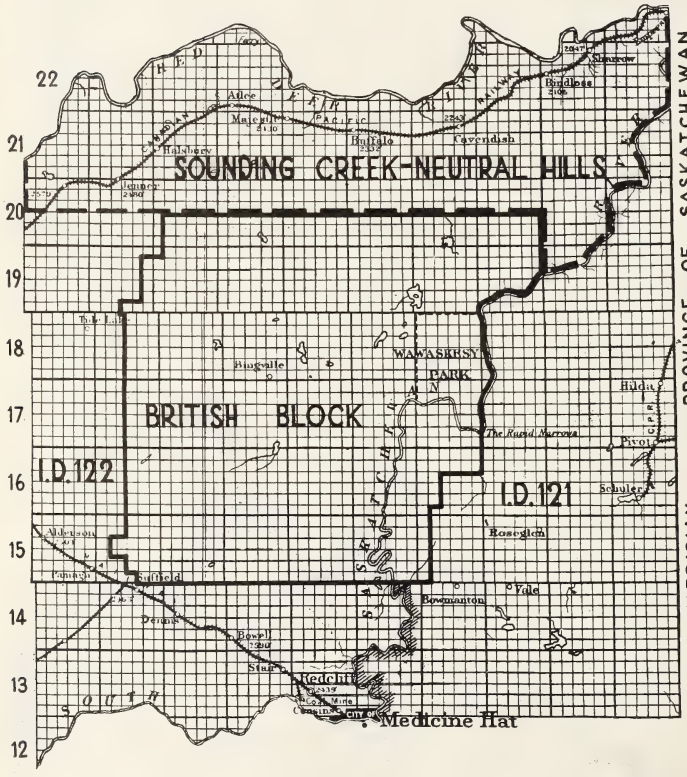


Map

Showing

PRESENT DISPOSITION of FORMER TILLEY EAST SPECIAL AREA

Scale 0 Miles 6 0 12



Details of sales in subdivisions which are included in the 84 notifications referred to above:

	Notifications	No of Lots
Maple Leaf, Plan 7242 AI	2	3
Canmore, Plan 39 Gen.	5	6
Patricia Townsite, Plan 1217 BA	2	2
Coleman, Plan 6808 CU	1	1
Maple Leaf, Plan 6632 Y	1	1
McMurray, Plan 616 AO	1	5
Richdale, Plan 6978 AW	1	1
Prairie River, Plan 7652 BG	1	1
Winnifred, Plan 5265 AD	1	1
Peace River Landing Settlement, Plan 5617 BK	1	2
Donnelly, Plan 204 CL	1	1
Jarvie, Plan 37 Gen.	2	2
McMurray Settlement, Plan 198 AS	1	1
Hanna, Plan 6133 AW	1	2
Walsh, Plan 3644 B	1	2
Bodo, Plan 5201 EO	1	1
Buffalo, Plan 1345 BA	1	2
Scapa, Plan 8731 DL	1	1
TOTALS	25	35
School lands' sales included in the 64 notifications referred to above: McLennan Townsite, Plan 1394 EU	2	2
Special grant included in the 26 notifications referred to above: Carbondale, Plan 232 AI	1	2

Change in Policy.—Patents and notifications have heretofore been sent by the dominion and provincial governments to the registrars and at the same time the patentee was advised. Where fees were required for the registration of these documents the registrar notified the owner of the land. During the course of many years a large number of patents and notifications have remained in the Land Titles Office unregistered, due to the failure of the prospective owners to send in the registration fee. In consultation with the registrars, a change in policy has now been adopted whereby the registrar's fee is now collected by this Department and transmitted to him with the notification, so that no notification is issued until the registration fee is received, thus ensuring its registration when forwarding it to the Land Titles Office.

Special Areas.—News that the Dominion Government had selected about thirty townships of land in the Tilley East just north of Medicine Hat for a bombing area and for other experimental purposes in connection with the war caused great excitement among the residents, who, in some cases, did not altogether like the idea of being moved from their land, in spite of the fact that the area had for many years yielded only a bare existence.

It should be recorded that all other areas in the province, and also other provinces, had been investigated by the Department of National Defence and finally this one was settled upon because the least number of families would be disturbed. Most of the lands which were held by the Crown were fairly level, tree-less and located close to railway and power supplies. They were generally useless for agriculture.

In May, 1941, Colonel Goodwin Gibson arrived in Edmonton with his associates to start proceedings for taking over on behalf of the Dominion Government the area which has since been commonly known as the British Block. Anticipating his arrival, abstracts of all patented lands in the Block were obtained and the facilities and help of this division were immediately made available to set up complete records of all ownerships.

Each owner's record showed upon a special form the lands held under title, the lands held under lease from the Crown and also grazing allotments, etc. A complete financial statement was also given showing details of all encumbrances including mortgages, liens, relief received, arrears of rentals and so forth, and a separate plan was prepared showing the holdings in detail. This work was

accomplished by searching every quarter section by order of township and range, after which the various holdings of each owner were sorted out and put into a folder in alphabetical order.

With this complete record the Commission set out for Medicine Hat where, through the courtesy of the Department of Public Works, offices were provided in the Court House, in order that each owner could appear before this Commission and submit a claim for compensation. It is generally known that all liens up to and including the year 1935 affecting lands in the Special Areas were cancelled in full by the Provincial Government, and, as a further concession to all owners in the British Block, whose compensation amounted to less than $1,500.00, agricultural relief liens under the 1936, 1937 and 1938 advances were withdrawn in as far as the lands were affected in the British Block.

Telephone calls, telegrams and communications were received daily from this Commission and the Dominion Government's legal representatives in Medicine Hat, who were also furnished with abstracts and various other detailed information covering the lands, whose owners were seeking compensation, and all inquiries were given immediate attention in order to assist the Dominion Government in the settlement of compensation without delay.

When all encumbrances are cleared from the lands in the British Block it is the intention of the Province of Alberta to lease this area to the Dominion Government.

The lands that have for so many years been known as the Tilley East are, therefore, no more, at least in name, for a glance at the map hereunder will show that it has been completely disposed of by the creation of the British Block under Order In Council, No. 645/41, dated the 13th of May, 1941. Order In Council, No. 644/41, passed on the same date, deleted certain lands which are now included in I.D. 121 and I.D. 122. The balance of the Tilley East still remains in the Special Areas, but by Order In Council, No. 901/41, dated the 2nd of July, 1941, is incorporated with and known as the Sounding Creek-Neutral Hills Special Area.

It will be noticed from the list of notifications issued that 13 were involved in connection with exchanges of land in the Special Areas. These exchanges were briefly referred to in last year's report. The main object is to consolidate the residents' holdings into one economic unit. The benefits, however, are two-fold in that the land transferred to the Government also helps in many cases to consolidate the lands held by the Crown thereby affording better administration in the elimination of isolated, privately-owned lands.

The main attributing factor to the delay in affecting these exchanges has been the badly encumbered state of the applicants' titled lands, and as many Dominion Government liens appeared among these encumbrances, discharges of these and all other indebtedness had to be obtained so that clear titles could issue in the name of the Crown. After the registration of the notifications covering the Crown lands to the applicants the amount of provincial indebtedness was registered as a charge against the new titles. As a departmental policy, exchanges are restricted to the lands within the Special Areas, and it is only in extenuating circumstances that exchanges are considered outside the Special Areas.

Through requests received from time to time by the Director of Surveys of the Department of Public Works, it was ascertained that 26 road diversions were scheduled for survey. As some of these requests were of long standing it was deemed advisable to investigate the necessity of these surveys as due to ever-changing conditions in the Special Areas, many of the roadways may not have been required. The result was that only 4 road surveys were made affecting mostly C.P.R. and Hudson's Bay lands.

The Special Areas Board now has made application, to be affected by Ministerial Order under Section 14 of the Special Areas Act, for the closing of all roads, trails and bridges to public travel or use, except certain specified roadways which are required for the economic life and administration of the areas.

Three small areas were sold and notifications were issued in favour of the Canadian Northern Railway Company. These areas were required for the erection of snow fences and located in the following quarter sections:—

S.w. ¼ 7-28-2-W. 4th Mer., containing 0.44 of an acre,
S.e. ¼ 22-30-11-W. 4th Mer., containing 0.61 of an acre,
S.w. ¼ 16-28-5-W. 4th Mer., containing 0.69 of an acre.

The Canadian Northern Western Railway Company purchased 1.93 acres, more or less, in the n.w. ¼ 25-22-12 w 4th mer., which area is now being used as a right of way for a wye at Wardlow.

In recognition of the elimination of the Tilley East Special Area and the new boundaries at present established, it is found that the following areas have been acquired by the Crown:—

By tax recovery	1,871,906 acres
By revestment	75,380 acres
TOTAL	1,947,286 acres

The 1,871,906 acres include 135,783.59 acres of tax recovery lands that were acquired by the Crown during this fiscal year.

At this point it may be interesting to submit the area of lands that the province has acquired outside the Special Areas, which is as follows:—

By tax recovery	610,180 acres
By revestment	417,718 acres
TOTAL	1,027,898 acres

Total area of land acquired by the province since the return of the natural resources:—

Inside Special Areas	1,947,286 acres
Outside Special Areas	1,027,898 acres
TOTAL	2,975,184 acres

Reference to the chart in this report will reveal that a total area of 3,268,778 acres has been patented, and taking into consideration the amount of lands acquired by the province through tax recovery and revestment, the figures show an actual loss to the province of only 293,594 acres. The term "by revestment" covers all lands transferred to the province excepting those transferred through tax recovery proceedings. For instance, lands transferred to the province by the Dominion Government, lands transferred to the province in exchange for other lands, Soldier Settlement lands and any other lands that are transferred through any cause to the Crown, are classified as revested lands.

New Surveys.—Due to a change in the course of the right bank of the Red Deer River at Drumheller, the city made application to acquire a certain area of the former bed of the river which adjoined an island already patented in that city's name. This necessitated a new survey which incorporated the island and the bed of the river. The city transferred the island back to the Crown in return for which a notification was issued to the city covering the island and the land now connecting it to the mainland. The city council defrayed all expenses in connection with this survey and transfer. It was brought to the attention of the Department that certain squatters had taken up residence on legal subdivisions 10 and 15 of section 11, township 29, range 20, west of the 4th meridian, which is Crown land and is already under lease from the Department. Following the policy of clearing up such squatter situations, wherever possible, a survey was ordered of the land occupied by each squatter, plans of survey prepared and squatter permits issued to each.

Due to the recession of the waters of Gap Lake in the south-east quarter of section 19 and the south-west quarter of section 20, township 24, range 9,

west of the 5th meridian, a resurvey was made in order to deal with an application for a tourist camp site. This is an ideal location for a commercial venture of this kind, and is situated immediately south of and adjoining the Banff highway midway between Exshaw and Canmore. The access road leading from the cabins to the highway was not all that could be desired from a safety point of view, but through the co-operation of the Department of Public Works this has now been remedied.

Reference was made in last year's report to a completed survey near the south approach on Twelfth Street to St. George's Island Bridge in Calgary. It was discovered that a portion of the accrued area fell within the limits of the right of way of the Canadian National Railway. This matter was brought to the attention of the railway authorities with the result that a free grant was issued in the name of the Grand Trunk Pacific Railway Company. This grant appears in the preceding list of notifications, against which no area is shown as it was described as Block A., according to registered plan No. 2336 F.A.

Townships 66 and 67, range 2, west of the 5th meridian and township 69, range 26, west of the 5th meridian: A supply of lithographed maps of the surveys of these townships (which surveys were made last year) has been received from Ottawa and released for distribution. Receipt of the plans of survey of townships 66 and 67, above described, near Tieland, permitted the registration of a notification in favour of the Northern Alberta Railways Company for right of way containing 34.91 acres, through the east half of section 35, and south-west quarter of section 36, township 66, range 2, west of the 5th meridian, and through the east half of section 2 and the east half of section 11, township 67, range 2, west of the 5th meridian, being a free grant and in accordance with the agreement covering the sale of the railways from the Provincial Government to the railway company. Additional lands were required by this railway company in the north-east quarter of section 11, township 67, range 2, west of the 5th meridian, which were disposed of by sale in the usual way.

Roadways.—Eighty-nine survey plans of roadways approved by the Director of Surveys, Department of Public Works, were received and recorded in this Division. These plans affected 296 parcels of Crown land throughout the province. The usual reservations were entered in the Division's records and in cases where the lands were alienated by agreement for sale or lease, etc., assignments were obtained and compensation credited to the purchasers or licensees as the case may be.

Licences of Occupation.—Logging Roads: A wartime boom in the lumber industry was reflected in the applications for logging roads and resulted in licences of occupation being issued to the following companies:—

Etter-McDougall Sawmills Limited (2 logging roads)
Chisholm Sawmills Limited (2 logging roads)
McRae Lumber Company Limited
Messrs. F. W. and A. A. Steffes

Other licences of occupation issued for power transmission line and pipe-lines to the Northwestern Utilities Limited (two pipe-lines), The East Kootenay Power Company, Limited, and The Canadian Western Natural Gas, Light, Heat and Power Company, Limited.

In accordance with the agreement of the province in connection with the sale of the railways, three licences of occupation were issued in favour of the Northern Alberta Railways Company for bridge sites at the following locations:—

N.e. ¼ 11-78-5-W.6th mer.—over Bremner Creek,
S.w. ¼ 29-76-5-W.6th mer.—over Burnt River,
N.w. ¼ 25-77-8-W.4th mer.—over Christina River,
S.e. ¼ 22-71-1-W.5th mer.—over Athabaska River,
S. ½ 16-59-2-W.5th mer.—over Pembina River,
N.e. ¼ 35-77-24-W.5th mer.—over Smoky River.
Between river lots 16 and 41, township 78, range 5, west of the 6th meridian—over Spirit River,
River lots 48 and 55, township 77, range 5, west of the 6th meridian—over Bremner Creek,
S.e. ¼ 13-66-15-W.4th mer.—over Missawawi Lake.

Leases.—Various leases of a miscellaneous nature were issued for recreational grounds, fur farming, gardening and residential purposes, one of the most northerly being issued to the Governor and Company of Adventurers of England Trading into Hudson's Bay, covering 8.25 acres, more or less, in an unsurveyed portion of township 89, range 4, west of the 5th meridian. This area was required as a site for a trading post and allied purposes.

Soil Surveys.—The following areas were covered by the soil survey party of the Division:—

1 NITON-CARROT CREEK AREA

Township 53—range 9—w 5th meridian,
Part only township 53—range 10—w 5th meridian,
Part only township 53—range 11—w 5th meridian,
Part only township 53—range 12—w 5th meridian,
Part only township 52—range 13—w 5th meridian,
Township 53—range 13—w 5th meridian,
Part only township 53—range 14—w 5th meridian,
Part only township 54—range 12—w 5th meridian.

2 ATHABASKA-LAC LA BICHE AREA

Part only township 67—range 15—w 4th meridian,
Part only township 68—range 16—w 4th meridian,
Part only township 67—range 16—w 4th meridian,
Township 68—range 17—w 4th meridian,
Part only township 67—range 17—w 4th meridian,
Township 68—range 18—w 4th meridian,
Township 67—range 18—w 4th meridian,
Township 66—range 18—w 4th meridian,
Township 68—range 19—w 4th meridian,
Township 67—range 19—w 4th meridian,
Part only township 66—range 19—w 4th meridian,
Part only township 67—range 20—w 4th meridian,
Township 66—range 20—w 4th meridian,
Part only township 68—range 21—w 4th meridian,
Part only township 67—range 21—w 4th meridian,
Township 66—range 21—w 4th meridian,
Township 68—range 22—w 4th meridian,
Township 67—range 22—w 4th meridian,
Township 66—range 22—w 4th meridian,
Township 68—range 23—w 4th meridian,
Township 67—range 23—w 4th meridian,
Township 66—range 23—w 4th meridian,
Part only township 66—range 24—w 4th meridian,
Township 65—range 24—w 4th meridian.

Operations started on the 21st day of May and the party disbanded on the 9th of September.

This survey was carried out with the object of determining the amount of available vacant Crown lands suitable for farming purposes within the above areas, the regulations governing the issue of agriculture leases being kept in mind. The lands were classified on the following basis:—

1 Lands Suitable for Immediate Settlement: These lands include quarter sections with soil suitable for continued crop production. At least 50 per cent of their area must be suitable for cultivation and the cost of bringing them under cultivation must not exceed $25.00 per acre.
2 Lands Unsuitable for Settlement: Lands in this class constitute quarter sections having less than 50 per cent of their area suitable for cultivation, due to poor soil, very rough topography or extreme stoniness.
3 Lands Having Potential Value: These are quarter sections which are unsuitable for settlement at the present time, due to muskeg or heavy tree cover, but which may become suitable for cultivation at some future period.

Each quarter section was inspected individually, soil samples being taken at different places over the quarter and classified on the spot, except, of course, where a general reconnaissance showed that certain areas did not merit a detailed survey at the present time due to inaccessibility, poor soil, very rough topography or a preponderance of muskeg.

In addition to the soil classification, the following information was obtained:

(a) Topography;
(b) Extent and kind of tree covering;
(c) Classification of the soil and its suitability for farming purposes;
(d) Improvements and value, if any;
(e) Approximate cost of clearing and breaking;
(f) Number of acres suitable for cultivation;
(g) The value of the land.

A total of 1,177 quarter sections was inspected and may be classified as follows:—

179 quarters, suitable for immediate settlement,
277 quarters, unsuitable,
721 quarters, potential agricultural lands.

The areas classified were mostly of the 2nd and 3rd class grey wooded type, more suitable for mixed farming than the growing of wheat only. Those quarter sections which have been classified as not suitable at the present time due to heavy clearing or to the presence of muskeg may become suitable for cultivation at some future date, should the trees or muskegs be removed by fire. It should be remembered that a great deal of muskeg land in the province has been brought under cultivation by the burning off of the moss cover and is now producing excellent crops. Unfortunately this practice of burning cannot be generally recommended as a method for reclaiming muskeg land due to the danger to nearby timber stands and neighboring farmsteads.

Soil surveys were carried out on lands for which agricultural lease applications had been received. These surveys and reports were executed as expeditiously as conditions would permit. The majority of applications were for lands which were far from gravelled roads, and weather conditions were in some cases responsible for making the dirt roads impassable, particularly in the Lac La Biche and Buck Lake, west of Breton, districts and districts adjacent to the North Saskatchewan river. In other cases delays were due to the fact that applications would be received in an area just after the Division's inspector had completed all his investigations and was in another part of the province, carrying out his season's programme.

Just over 300 applications for agricultural leases were dealt with and soil surveys of the various quarters gave the following information:—

216 quarters met the requirements of the regulations,
62 quarters were unsuitable at present, but of potential value,
26 quarters were rejected.

During the inspections, general agricultural practice of the district was observed, and, wherever possible, beneficial advice was given to the farmers.

In addition, 12 quarter sections, or fractions thereof, were inspected for miscellaneous leases and some time was spent in Southern Alberta in connection with the proposed grazing reserves in the old Tilley East Special Area and in the Castle River and Burmis districts. A general inspection was also made of the old Cooking Lake Forest Reserve and a valuation placed on the improvements owned by the Blackfoot Stock Association.

Mineral Taxation.—The Mineral Taxation Act of 1941 has been placed under the administration of this Division, and in accordance with same only one area to be classified as producing, has been established so far. This, of course, is in the Turner Valley. New producing areas will be proclaimed from time to time as new oil fields are discovered.

Tax notices were mailed to all the registered owners of the minerals in this producing area in accordance with the final assessment, as revised upon appeal by the Chairman of the Alberta Assessment Commission. In the producing area the rate was struck at 2 mills. In the non-producing area the lands are taxed at the rate of ½c per acre. In as far as the non-producing area is concerned, an unfortunate feature of the act provides that every owner of minerals shall deliver to the Minister a statement of the parcels taxable under the provisions of this act. This is the reversed procedure to sending out assessment notices. It is, therefore, quite understandable that many owners will fail to comply with the act, due, in many cases, to the fact that the owners of Alberta minerals are living outside of the Dominion and are not, therefore, aware of this provision. Advertisements, however, have appeared in the provincial papers calling attention to the requirements of this act.

In the event of non-payment of these taxes, the Minister shall notify the owner of the fact by sending a registered letter to his address as shown by his certificate of title. The proper administration of this portion of the act is not possible because the Department has no record of the ownerships of the various minerals not included in the non-producing area, which can be obtained only from the registrars of the Land Titles offices. This would involve a great deal of time and work by experienced people familiar with such records. At the present time the staffs of the two offices are unable to cope with any additional work outside of their regular duties. If a complete record of the mineral owners cannot soon be obtained, and it seems most unlikely that it can, then some consideration must be given to amending or revising the Mineral Taxation Act as it is clear that it cannot be successfully administered unless the Department has record of the names and addresses of owners who are subject to taxation.

Duplicating Machine.—The Gestetner Duplicating Machine and its operator have been transferred to this Division. During the year 389 stencils were cut and a total of 136,903 copies were run off. The balance of the operator's time is taken up in stenographic work.

Preservation of Records on Film.—As the Department has been authorized by legislation to record on film any documents of a cancelled transaction, a Recordak Junior has been installed by the Recordak Corporation and was put into service in October of this year.

In connection with the installation of this machine, some idea of its value may be obtained from the following article:—

"Before a bombing plane can be built draftsmen must make 60,000 mechanical drawings. Thirty tons of blueprints must be made before the building of a battleship is completed. In the Library of Congress are copies of nearly 10,000,000 books. In the public and private archives of the nation is stored the recorded knowledge on which the cultural and industrial life of the nation is based.

If enemy bombs should destroy these priceless records, how would we duplicate them? A bombed building can be built up again—but ideas, designs, patents, formulae, masterpieces of architecture, if the paper on which they are recorded is destroyed, may be lost to us forever. Portions could be recaptured only by great expenditure of time and labor.

Today invaluable records of this sort are photographed on microfilm. An entire drawing, even a whole page of newspaper, may be copied on a tiny piece of film no larger than a postage stamp. A novel of over a thousand pages, like "Gone With the Wind," can be copied on a roll of film the size of a five-cent spool of thread.

A plant manufacturing machine tools found itself with 400,000 charts that took up 1,500 square feet of floor space. Every day the number grew. Reduced to microfilm the whole lot could be stored away in two drawers of a letter-file. About 9,000 drawings were duplicated on a reel of film the manager could slip into his pocket or hide away in a safe-deposit vault.

Telephone companies, water companies, gas and electric corporations today are microfilming their records. If a city is bombed, repair crews will know just where to go to repair breaks, even if original engineering plans and records are damaged or lost. Records which must be added to or changed are re-photographed periodically and kept up to date. Some utility companies are doing this every six months.

Banks photograph checks, for a permanent record that can be filed away without taking up room. Letters written by soldiers abroad are microfilmed so that a single air-plane, bound for home, can carry the equivalent of tons of mail. The Army and Navy are making other uses of the film that can't be told until the war is over. Newspapers from 37 countries are now available through Harvard's microfilm subscription service for libraries. All books in the British Museum written before the year 1500 A.D. are being recorded—some 10,000,000 pages in all—in an American sponsored project. No bomb can ever lose their contents to mankind.

The secret of microfilm is an ultra-fine grain emulsion with what photographers call high resolving power and inherent contrast. That is, it can record extremely fine detail—so fine that in reducing a drawing to the size of a pinhead, 1/900th of the original area, and then enlarging it, all of the essential detail is preserved."

Looking forward to an era of progress and reform after the conclusion of this war, it is quite within the range of possibility that this method may be universally adopted throughout all Government departments.

Photostat Machine.—A record year was established in the photostat division where 51 rolls of photostat paper, each 350 feet long, were used. This machine is now practically in continuous operation and its value, judging from the amount of work executed for the various departments, has been definitely established and recognized throughout the service.

In this connection it is interesting to know that a great volume of work was done for the Department of Municipal Affairs in preparing its preliminary material in order to establish larger Municipal District Units. The time at the disposal of this Division was limited and without the photostat machine it would have been impossible to have had the various plans ready for the meetings which had been arranged for the discussion of the proposed new districts.

From time to time assignments have been done for the Department of Geology of the University of Alberta. Dr. Allan is greatly impressed with the ingenuity of this machine, particularly when weeks of work can be saved by the enlargement of fine topographical features.

New Maps.—The new map of the Province of Alberta, the work of this Division, came off the press in October, drawn to a scale of 16 miles to the inch. This fits in to the same scale as the Saskatchewan map, which is a very handy size, measuring 4′4″ by 2′6″. The map shows all surveyed areas of the province on a blue background, making the names of the cities, towns, villages and post offices, printed in black, very legible. Railways are shown in black and the highways in red. In addition trails, irrigation canals, ferries, railway stations, Hudson's Bay Posts, radio stations, including forestry and commercial, principal airports, forest reserves, national parks and elevations are shown. A new strip map of Turner Valley was drafted, which also included the area north of the Turner Valley field for a distance of about 7 miles in a north-westerly direction.

Maps and Plans.—Apart from the disposal of a large number of maps to the general public and the various Government departments, it was most gratifying to be of assistance to the pilots of the U.S.A. aircraft who refueled their planes in Edmonton on their way to Alaska. The maps mostly in demand by the pilots covered Northern Alberta and British Columbia, Yukon and the North-west Territories.

Changes continued to take place in the personnel of the staff. Eight resignations were accepted during the year, four of which were due to enlistments in the armed forces. The war has made the most inroads on our drafting staff, making it difficult to maintain a high standard of prompt and efficient service. However girls are now successfully employed at the drafting desks and show quite an aptitude for the junior branches of the work.

Dominion Maps.—The new Dominion publications, Whitecourt-Athabaska and Grande Prairie-Peace River, in the National Topographic Series were published, and this Division co-operated with Ottawa in the final check of these maps before they were run off the press.

Grazing Leases.—There was a decided increase in the descriptions of lands for grazing leases, mainly due to the fact that the Special Areas grazing leases, lying within the area withdrawn from the Tilley East Special Area, were converted into provincial lands grazing leases.

Accounting Division

REPORT OF THE ACTING ACCOUNTANT, E. R. EDWARDS

During the year ending March 31, 1942, there was a surplus of $1,745,929.82 on income account, an increase of $384,714.29 over the previous year. Included in this year's figures, however, is a surplus of $121,058.73 on operations of the Game Branch, which was transferred to this Department on April 1, 1941.

Every branch of the Department showed an increase in revenue over the previous year, the most notable being the Mining Lands Branch and the Timber Branch which showed increases of $127,751.20 and $120,003.56 respectively. An examination of statment "H" will show the details of increases in all branches. It will be noted from statement "B" that the net revenue on Income Account for the year was $2,593,485.14, an increase of $561,990.76.

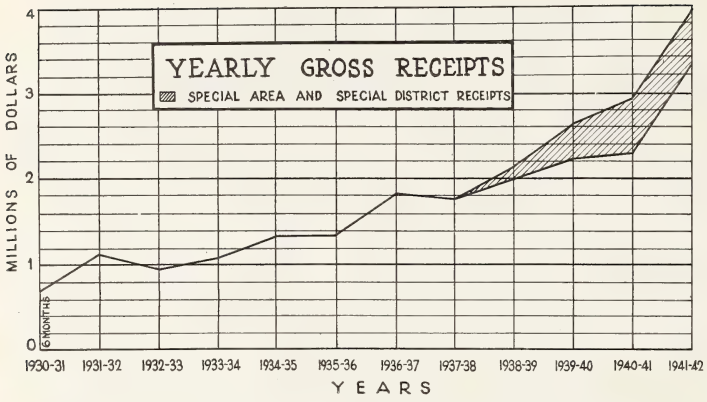
The total expenditure on income account amounted to $847,555.32. The increase of $177,276.47 was due to the operational costs of the Fisheries and Game Branches, $48,969.86 and $40,063.44, and to a sharp increase of $98,554.62 in fire-fighting expenses.

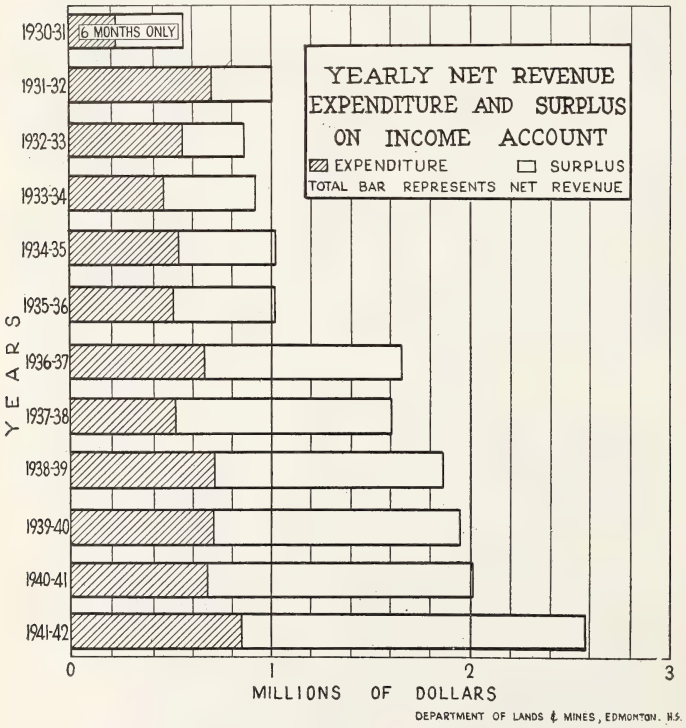
Combined collections from Special Areas and Special Districts amounted to $594,010.46. The decline in collections on Agricultural Relief Advances more than accounts for the total decrease of $39,734.68. The combined expenditures for this year's operations were $327,080.62, and were all paid from funds in the Special Areas and Special Districts Trust Accounts. Details will be found in statements "E", "F", and "G".

Since October 1, 1930, when the natural resources of the province came under the control of the Provincial Government, there has beeen an enormous increase in the volume of cash receipts being handled by this Division. The total cash received from all sources during this fiscal year was $3,967,861.44, as shown in statement "A". The following graphs are presented to illustrate the growth of gross receipts and the relationship between net revenue and expenditure on income account.

Index to Statements

A.—Statement of Receipts from All Sources.
B.—Statement of Receipts Income Account.
C.—Statement of Receipts Capital Account.
D.—Statement of Receipts and Disposition of Agricultural Advances.
E.—Special Areas Trust Account Statement of Receipts and Payments.
F.—Special Districts Trust Account Statement of Receipts and Payments.
G.—Statement of Receipts, Special Areas and Special District.
H.—Statement of Receipts by Branches.
I.—Statement of Receipts, School Lands Branch.
J.—Alberta School Lands Trust Fund Balance Sheet.
K.—Alberta School Lands Sales Revenue Account.
L.—Statement of Collections on Tax Recovery Lands.


YEARLY GROSS RECEIPTS
SPECIAL AREA AND SPECIAL DISTRICT RECEIPTS
MILLIONS OF DOLLARS
6 MONTHS
0
1
2
3
4
1930-31
1931-32
1932-33
1933-34
1934-35
1935-36
1936-37
1937-38
1938-39
1939-40
1940-41
1941-42
YEARS


YEARLY NET REVENUE EXPENDITURE AND SURPLUS ON INCOME ACCOUNT
EXPENDITURE
SURPLUS
TOTAL BAR REPRESENTS NET REVENUE
6 MONTHS ONLY
1930-31
1931-32
1932-33
1933-34
1934-35
1935-36
1936-37
1937-38
1938-39
1939-40
1940-41
1941-42
YEARS
0
1
2
3
MILLIONS OF DOLLARS
DEPARTMENT OF LANDS & MINES, EDMONTON, ALTA.

STATEMENT A.

STATEMENT OF RECEIPTS FROM ALL SOURCES

From April 1, 1941 to March 31, 1942

	Gross Receipts	Refunds	Net Revenue
Income Account	$2,703,598.18	$ 110,688.12	$2,592,910.06
Capital Account	10,486.91	70.00	10,416.91
Reimbursement of Previous Year's Expenditures	7.36	.....	7.36
School Lands Trust Fund	127,882.36	8.10	127,874.26
Special Areas and Special Districts	603,750.33	9,739.87	594,010.46
Unapplied Receipts	452,427.78	376,612.40	75,815.38
Tax Recovery	53,600.66	111.84	53,488.82
Improvements	4,405.36	2,189.69	2,215.67
Land patents cultivation crop shares	754.02	.....	754.02
School lands cultivation crop shares	6,767.34	.....	6,767.34
Grazing permits, fees, rentals, etc.	4,181.14	.....	4,181.14
	$3,967,861.44	$ 499,420.02	$3,468,441.42

STATEMENT B.

STATEMENT OF RECEIPTS—INCOME ACCOUNT

From April 1, 1941 to March 31, 1942

INCOME ACCOUNT:	Gross Receipts	Refunds	Net Revenue
Fisheries:			
Casual	$ 362.74	.....	$ 362.74
Fisherman's licences	8,995.00	.....	8,995.00
Angling permits	14,650.11	$ 1,769.26	12,880.85
Boat licences	60.00	.....	60.00
Game Branch:			
Casual	1,622.73	.....	1,622.73
Game licences	80,832.83	5,758.70	75,074.13
Trap line permits	3,129.84	.....	3,129.84
Fur tax	81,587.44	3,322.59	78,264.85
Sale of fur	3,031.96	1.34	3,030.62
Lands and Grazing Branch:			
Casual	8,852.24	327.69	8,524.55
Grazing permits, fees, dues, etc.	142,531.91	22,854.88	119,677.03
Hay permits, fees, dues, etc.	4,284.17	243.50	4,040.67
Agricultural fees, rentals, etc.	1,553.29	235.00	1,318.29
Improvement collection fees	544.54	67.50	477.04
General sales interest	1,800.45	.....	1,800.45
Filing authority fees	2.00	.....	2.00
Cultivation fees, rentals, etc.	11,421.39	3,300.94	8,120.45
Surface rentals	2,020.95	.....	2,020.95
Timber Branch:			
Casual	5,545.52	2.00	5,543.52
Timber fees, dues, rentals, etc.	734,041.42	7,405.54	726,635.88
Mining Lands Branch:			
Casual	11,236.86	.....	11,236.86
Coal fees, rentals, etc.	82,756.69	2,196.25	80,560.44
Coal Mines Act sundry revenue	4,498.86	31.50	4,467.36
Coal royalties	216,786.95	9.00	216,777.95
Petroleum and natural gas fees, rentals, etc.	196,303.50	6,866.55	189,436.95
Petroleum and natural gas royalties	570,604.94	.....	570,604.94
Mineral Tax	75,120.93	.....	75,120.93
School Lands Branch:			
Interest on sales	99,022.53	149.69	98,872.84
Miscellaneous	324,273.92	55,089.89	269,184.03
Miscellaneous:			
Casual	8,905.13	1,016.30	7,888.83
Services and supplies	6,102.18	.....	6,102.18
Reimbursement of salaries and expenses	588.16	.....	588.16
Tax recovery office fees	527.00	40.00	487.00
Total (carried to Statement A)	$2,703,598.18	$ 110,688.12	$2,592,910.06
Special Districts (carried to Statement D):			
1936 seed grain interest	123.88	.....	123.88
1939 agricultural advances interest	41.56	.....	41.56
1937-38 feed and fodder interest	285.72	.....	285.72
1938-39 feed and fodder interest	123.92	.....	123.92
TOTAL INCOME ACCOUNT	$2,704,173.26	$ 110,688.12	$2,593,485.14

STATEMENT C.

STATEMENT OF RECEIPTS—CAPITAL ACCOUNT

From April 1, 1941 to March 31, 1942

	Gross Receipts	Refunds	Net Revenue
Land sales principal	$ 10,486.91	$ 70.00	$ 10,416.91

STATEMENT D.

STATEMENT OF RECEIPTS AND DISPOSITION OF AGRICULTURAL ADVANCES

From April 1, 1941 to March 31, 1942

Receipts:		
Gross receipts		$ 35,856.41
Refunds		20.65
Net to statement G		$ 35,835.76

Disposition:	Principal	Interest		
1937 seed grain	$ 7,253.88	$ 1,826.16	to Provincial Treasurer	
1936 seed grain	261.93	123.88	to Provincial Treasurer	
1939 agricultural advances	353.28	41.56	to Provincial Treasurer	
1937-38 feed and fodder	1,804.84	285.72	to Provincial Treasurer	
1938-39 feed and fodder	1,221.12	123.92	to Provincial Treasurer	
1938 agricultural advances	1,942.70	439.86	to Dept. of Municipal Affairs	
1938 agricultural advances	6,544.67	1,218.56	repaid to banks	
1938 agricultural advances	10,461.00	1,932.68	to be forwarded to Provincial Treasurer	
	$29,843.42	$ 5,992.34		
			$ 29,843.42	
			5,992.34	
			$ 35,835.76	

STATEMENT E.

STATEMENT OF RECEIPTS AND PAYMENTS
SPECIAL AREAS TRUST ACCOUNT

For the Year Ended March 31, 1942

Cash in bank, March 31, 1941		$ 34,737.23
Receipts:		
Grazing rentals	$ 57,783.88	
Cultivation rentals	45,822.88	
Equipment rentals, 1941	21,975.78	
Province of Alberta, equipment grant	10,000.00	
Sale of buildings	8,647.82	
Bank interest	706.64	
Miscellaneous	1,825.56	
		146,762.56
		$ 181,499.79
Payments:		
Purchase of equipment	$ 22,478.66	
Equipment maintenance	12,892.98	
Community pastures	7,376.31	
International Business Machine costs	3,711.17	
Special Districts items charged to Special Areas Trust Account	687.24	
Construction of dams	277.75	
Grass seed	1,345.60	
Hay meadows	19.80	
Miscellaneous	756.52	
		49,546.03
Cash in bank, March 31, 1942		$ 131,953.76

STATEMENT F.

STATEMENT OF RECEIPTS AND PAYMENTS
SPECIAL DISTRICTS TRUST ACCOUNT

For the Year Ended March 31, 1942

Cash in bank, March 31, 1941		$ 65,368.24
Receipts:		
General tax collections	$ 359,739.30	
Funds transferred from Municipal Districts Bank Accounts	8,155.47	
Bank interest	530.30	
Reimbursement of Special Areas items charged to Special Districts Trust during year ending March 31, 1941	524.44	
Miscellaneous	7,220.05	
		376,169.56
		$ 441,537.80

Payments:		
School requisitions, 1941	$ 101,675.77	
Hospital requisitions, 1941	24,670.06	
Maintenance of roads	49,619.65	
Provincial Mental Hospital	626.50	
Provincial Training School	2,157.10	
Child welfare	127.75	
Direct relief	2,828.39	
Mothers' allowances	5,479.02	
Provincial Treasurer for special administrative services	2,892.06	
Land Titles Office fees	2,522.20	
Pests and weeds	1,213.77	
Buildings	850.00	
Special Areas items charged to Special Districts Trust Account	442.20	
Miscellaneous	501.96	
Tilley East collections transferred to Dept. of Municipal Affairs	41,713.93	
Liquidation of debentures of former school districts in Special Areas	39,916.16	
Liquidation of liabilities of former municipal districts in Special Areas	298.07	
		277,534.59
Cash in bank, March 31, 1942		$ 164,003.21

STATEMENT G.

STATEMENT OF RECEIPTS
SPECIAL AREAS AND SPECIAL DISTRICTS
From April 1, 1941 to March 31, 1942

		Gross Receipts	Refunds	Net Revenue
TAXES:				
General Tax—Statement F		$ 367,328.40	$ 7,589.10	$ 359,739.30
Social Service Tax		56,201.92	26.28	56,175.64
Reporting School Tax		8,430.30	.....	8,430.30
Refunded to school districts	$8,008.74			
5% commission to Special Districts Trust Account	421.56			
Total collections	$8,430.30			
Hail Tax		3,648.22	.....	3,648.22
Refunded to Hail Board	$3,465.82			
5% commission to Special Districts Trust Account	182.40			
Total collections	$3,648.22			
TOTAL TAX COLLECTIONS		$ 435,608.84	$ 7,615.38	$ 427,993.46
Funds transferred from Municipal Districts Bank Accounts, Statement F		8,155.47	.....	8,155.47
Special Districts Bank Interest, Statement F		530.30	.....	530.30
Special Districts Miscellaneous, Statement F		6,626.09	10.00	6,616.09
Statement F	$7,220.05			
Less: Reporting schools commissions	421.56			
Less: Hail commissions	182.40			
	$6,6616.09			
Special Areas Trust Receipts		116,880.62	2,093.84	114,786.78
Statement E	$146,762.56			
Less: Equipment rentals, 1941	21,975.78			
Less: Province of Alberta Equipment Grant	10,000.00			
	$114,786.78			
Agricultural Advances, Statement D		35,856.41	20.65	35,835.76
Collections for Department of Agriculture:				
Horse vaccine		71.00	.....	71.00
Bran and sawdust		21.60	.....	21.60
		$ 603,750.33	$ 9,739.87	$ 594,010.46

STATEMENT H.

STATEMENT OF RECEIPTS BY BRANCHES

For Fiscal Years Ending March 31, 1941 and March 31, 1942

	Fiscal year ending March 31, 1941	Fiscal year ending March 31, 1942
INCOME ACCOUNT:		
Fisheries Branch	.....	$ 22,298.59
Game Branch	.....	161,122.17
Lands and Grazing Branch	125,544.35	145,981.43
Timber Branch	612,175.84	732,179.40
Mining Lands Branch	945,333.30	1,073,084.50
Mineral Tax	.....	75,120.93
School Lands Branch	337,777.81	368,056.87
Miscellaneous	10,663.08	15,066.17
CAPITAL ACCOUNT:		
Land sales principal	9,511.39	10,416.91
TRANSFERRED TO OTHER DEPARTMENTS	851.49	7.36
SCHOOL LANDS TRUST FUND	76,589.34	127,874.26
SPECIAL AREAS AND SPECIAL DISTRICTS:		
Taxes	420,874.08	427,993.46
Funds transferred from Improvement Districts Trust Accounts	380.12	.....
Funds transferred from Municipal Districts Bank Accounts	.....	8,155.47
Special Districts bank interest	182.29	530.30
Special Districts miscellaneous	1,057.18	6,616.09
Special Areas receipts	106,748.30	114,786.78
Agricultural advances	103,907.28	35,835.76
Horse vaccine	553.50	71.00
Bran and sawdust	42.39	21.60
UNAPPLIED RECEIPTS CARRIED FORWARD:		
Suspense	38,035.14	129,304.20
Improvements	2,899.21	2,215.67
Land patents cultivation crop share	1,492.29	754.02
School lands cultivation crop share	33,791.91	6,767.34
Grazing permits, fees, rentals, etc.	25,409.25	4,181.14
	$2,853,819.54	$3,468,441.42

STATEMENT I.

STATEMENT OF RECEIPTS
SCHOOL LANDS BRANCH

April 1, 1941 to March 31, 1942

	Receipts	Refunds	Net Revenue
INCOME ACCOUNT:			
Sales: interest	$ 99,022.53	$ 149.69	$ 98,872.84
Grazing fees, rentals, etc.	15,769.61	186.33	15,583.28
Hay fees, dues, etc.	875.25	61.85	813.40
Cultivation fees, rentals, etc.	104,687.05	53,389.99	51,297.06
Surface rentals	116.72	.....	116.72
Miscellaneous leases	279.41	.....	279.41
Timber permits, fees, dues, etc.	59,326.62	880.49	58,446.13
Coal fees, rentals, etc.	4,269.87	.....	4,269.87
Coal royalties	22,849.83	.....	22,849.83
Petroleum and natural gas fees, rentals, etc.	25,894.61	512.40	25,382.21
Petroleum and natural gas royalties	88,293.81	.....	88,293.81
Miscellaneous	1,911.14	58.83	1,852.31
	$ 423,296.45	$ 55,239.58	$ 368,056.87
TRUST ACCOUNT:			
School lands sales principal	127,882.36	8.10	127,874.26
	$ 551,178.81	$ 55,247.68	$ 495,931.13

STATEMENT J.

ALBERTA SCHOOL LANDS TRUST FUND
BALANCE SHEET—MARCH 31, 1942

ASSETS

Cash in bank and on hand		$ 20,093.98	
Investments:			
Dominion of Canada Debentures	$10,355,095.91	10,355,095.91	
Accounts Receivable:			
Undue principal	731,311.78		
Arrears principal	755,509.87		
		1,486,821.65	
			$11,862,011.54

LIABILITIES

Alberta School Lands Trust Fund	$11,862,011.54	
		$11,862,011.54

STATEMENT K.

ALBERTA SCHOOL LANDS SALES
REVENUE ACCOUNT
April 1, 1941 to March 31, 1942

Arrears interest as at March 31, 1941	$ 533,032.57	
Interest charges	114,343.01	
Interest on reinstated accounts	33,042.19	
Interest revenue		$ 98,872.84
Interest on cancelled sales written off		58,039.30
Amounts transferred from cultivation leases held on reinstated sales		9,393.91
Interest reductions granted by School Lands Board		95,616.72
Arrears interest as at March 31st, 1942		418,495.00
	$ 680,417.77	$ 680,417.77

STATEMENT L.

STATEMENT OF COLLECTIONS ON TAX RECOVERY LANDS
April 1, 1941 to March 31, 1942

Grazing permits		$ 2,304.64
Grazing rentals		4,067.58
Sales principal		1,032.25
Sales interest		16.95
Cultivation permits		85.18
Cultivation rentals		879.38
Wheat acreage bonus		942.01
Cultivation crop shares		5,374.78
Miscellaneous leases		16.27
Miscellaneous sale of improvements		148.34
Sundry revenue		134.71
		$ 15,002.09
Tax recovery office fees		487.00
		$ 15,489.09

Special Areas Administration

REPORT OF SPECIAL AREAS BOARD—A. C. McCULLY, Chairman

During the year under review, the following permits were issued:—1,205 provincial lands' grazing permits, covering 523,828 acres; 402 school lands' grazing permits, covering 165,726 acres; 869 provincial lands' cultivation permits, covering 169,229 acres of broken, and 83,879 acres of unbroken land; 226 hay permits, giving authority to cut 2,644 tons of hay. The revenue derived from these sources may be found elsewhere in this report in the Statement of Receipts, Special Areas Trust Account.

Following the policy of issuing new long term leases, 116 applications for twenty year grazing leases and 108 applications for six and twenty year cultivation leases were dealt with. In dealing with applications for long term grazing leases, old allotments and leases were cancelled, and a decided effort was made to re-allocate these, and other available public lands, in such a manner that the lease of each applicant would be in as compact a block as possible, at all times recognizing the necessity of having the same well watered. Arrears were consolidated and spread over varying periods of from ten to twenty years.

As a result of the policy to exchange privately owned lands for more desirable public lands, 41 applications were dealt with. Of this number 30 were recommended, 3 were refused, and 8 held for further investigation.

During the year, 19,740 lbs. of crested wheat grass were harvested from public lands at an average cost of 2¾ cents per pound. This includes the cost of harvesting, cleaning and sacking. Of this amount, 3,946 lbs. were returned in payment on seed loaned and crop shares. A total of 1,200 lbs. was received from the Lethbridge Experimental Station under their policy of establishing seed plots. This seed, together with the carry-over from 1940, mentioned in the previous year's report, was distributed to 413 farmers to be seeded on public lands. The practice of loaning seed to be sown on privately owned lands was discontinued. All seed now distributed is sown on public lands. During the year 4,200 lbs. were seeded on road allowances where new grades were built, and 13,952 lbs. were in store on December 31, 1941.

The Prairie Farm Rehabilitation Act again became active and 93 applications for dams and dugouts for stock watering purposes, together with 6 for irrigation projects were given the approval of the Special Areas Board. A total of $684.50 was expended on repairs to the Sunnynook, Harding, Bartman and Pollockville Community dams.

Ducks Unlimited completed projects on the following locations:—Lake Traung, township 28, range 14; Major's Lake, township 25, range 9; Lost Lemon Lake, township 16, range 17 (Lomond Community Pasture); Edgewood Lake, township 15, range 17 (Lomond Community Pasture)—all west of the 4th meridian. Except in extremely dry periods a permanent water supply will now be assured in each of these districts.

Last year's report showed some 256,000 acres of pasture land as being available to residents of the area in various community pastures. During the year approximately 34,560 acres were withdrawn from two of the pastures. These lands are now included in the National Defence Reserve, known as the British Block. This necessitated the removal of a great deal of fencing, as well as the range riders' buildings and corrals. A further 16,000 acres were withdrawn and leased to private parties. This area was originally in the Cavendish Community

Pasture, but on withdrawal of the portion in the British Block it was decided to abandon this community pasture and include parts of it in the Buffalo Atlee and Bindloss pastures and lease the balance to private parties. A total of 3,054 head was pastured during the season.

The use of these pastures gives residents, who have not sufficient summer grazing close to their home holdings, an opportunity to more fully co-operate with the war effort by reducing wheat acreage and by the raising and feeding of more stock during the winter season.

In order that the fullest co-operation might be given the officials of the Wheat Acreage Reduction Act, the entire time of one clerk was given up in each office of the Board to this work, for a period of six months. In addition to this, the Board's fieldmen spent several weeks taking applications in outlying points. A total of 3,300 applications and 2,866 statements of claim was taken.

In December, 1940, the Board acquired from the dissolved Municipal District of Rosenheim, a Monarch 75 Caterpillar and 42″ Austin Elevating Grader. During the winter months this outfit was reconditioned in the Board's Youngstown shop. Road machinery of the Board now consists of four caterpillars, two of which are equipped with bulldozers, two elevating graders, two auto patrols and a number of old style blade graders. During the season these outfits completed 69 miles of high standard elevated grade at an approximate operating cost of $125.00 per mile; 248 miles of standard blade grade at $22.00 per mile; 35 miles of light blade grade at $8.00 per mile. Auto patrols on two occasions covered a distance of 1,874 miles, and on three occasions a distance of 624 miles. The Board's bridge crew, consisting of four men with a truck, built 69 new culverts and bridges and repaired 22.

The amount of $27,643.87, shown in the Financial Statement as road maintenance, represents payments in cash. In addition to this, roadwork was completed and applied on taxes and relief in the amount of $9,747.01, or a total of $37,390.88 was spent on roadwork.

For the past three years the Board has used the workshop on the Agricultural Farm at Youngstown. From time to time equipment has been added until there is now a complete blacksmith outfit, including power drill, grinder, trip hammer and acetylene welding outfit. Machinery is all overhauled in this shop during the winter. Culverts are also built from salvaged lumber, taken from buildings on abandoned lands. These culverts vary in size from 24″ to 74″ in diameter and 20′ to 30′ in length. This is considered worthy of mention, as the idea is original. In construction four old car tire rims or tractor wheels of equal size are first selected. These are covered with 2″ by 4″, 4″ by 4″ or 6″ by 6″, according to the size of the culvert. They are bound to the rims with salvaged wire and treated with a mixture of Diesel fuel and Wainwright tar. The rims or wheels are placed on the inside for added strength. A culvert of this design ,made from old steam engine wheels, is in fact quite strong enough to be used in a railroad grade.

Statement of receipts and payments are kept under two headings, namely, Special Districts Trust Account, and Special Areas Trust Account. The Special Districts Trust Account represents the collection and disbursement of moneys collected from privately owned lands, whilst the Special Areas Trust Account represents these transactions from public lands.

SPECIAL DISTRICTS TRUST ACCOUNT
STATEMENT OF RECEIPTS AND PAYMENTS
For the Year Ended March 31, 1942

Cash in bank, March 31, 1941		$ 65,368.24
Receipts:		
General tax collections	$ 359,739.30	
Funds transferred from Municipal Districts Bank Accounts	8,155.47	
Bank interest	530.30	
Reimbursement of Special Areas items charged to Special Districts Trust Account, during year ending March 31, 1941	524.44	
Miscellaneous	7,220.05	
		376,169.56
		$ 441,537.80
Payments:		
School requisitions, 1941	$ 101,675.77	
Hospital requisitions, 1941	24,670.06	
Maintenance of roads	49,619.65	
Provincial Mental Hospital	626.50	
Provincial Training School	2,157.10	
Child welfare	127.75	
Direct relief	2,828.39	
Mothers' allowances	5,479.02	
Provincial Treasurer for special administrative services	2,892.06	
Land Titles Office fees	2,522.20	
Pests and weeds	1,213.77	
Buildings	850.00	
Special Areas items charged to Special Districts Trust Account	442.20	
Miscellaneous	501.96	
Tilley East collections transferred to Dept. of Municipal Affairs	41,713.93	
Liquidation of debentures of former school districts in Special Areas	39,916.16	
Liquidation of liabilities of former municipal districts in Special Areas	298.07	
		277,534.59
Cash in bank, March 31, 1942		$ 164,003.21

SPECIAL AREAS TRUST ACCOUNT
STATEMENT OF RECEIPTS AND PAYMENTS
For the Year Ended March 31, 1942

Cash in bank, March 31, 1941		$ 34,737.23
Receipts:		
Grazing rentals	$ 57,783.88	
Cultivation rentals	45,822.88	
Equipment rentals, 1941	21,975.78	
Province of Alberta, equipment grant	10,000.00	
Sale of buildings	8,647.82	
Bank interest	706.64	
Miscellaneous	1,825.56	
		146,762.56
		$ 181,499.79
Payments:		
Purchase of equipment	$ 22,478.66	
Equipment maintenance	12,892.98	
Community pastures	7,376.31	
International Business Machines costs	3,711.17	
Special Districts items charged to Special Areas Trust Account	687.24	
Construction of dams	277.75	
Grass seed	1,345.60	
Hay meadows	19.80	
Miscellaneous	756.52	
		49,546.03
Cash in bank, March 31, 1942		$ 131,953.76

As pointed out in previous reports, it is felt that owing to extremely uncertain crop conditions in these areas, it is good policy to carry a substantial reserve in order that operations should not be curtailed during periods of extended drought.

GOVERNMENT OF THE PROVINCE OF ALBERTA

DEPARTMENT OF LANDS AND MINES

SPECIAL AREAS AND SPECIAL DISTRICTS

CASH STATEMENT FOR THE FISCAL YEAR 1941-42

(Ending March 31, 1942)

CASH ON HAND MARCH 31, 1941 AND REVENUE FOR YEAR 1941-42:				
Cash in bank, March 31, 1941—Special Districts Trust Account		$ 65,368.24		
Funds transferred from Municipal District Bank Accounts		8,155.47		
Special District Collections:				
General tax	$359,739.30			
Social Service taxes	56,175.64			
Interest collections on agricultural advances	2,233.50			
Miscellaneous	6,718.09			
Road maintenance applied on taxes	5,029.04			
Road maintenance applied on relief	4,717.97			
Reimbursement of Special Areas items charged to Special Districts Trust during year ending March 31, 1941	82.24			
Bank interest	530.30			
		435,226.08		
			$508,749.79	
GOVERNMENT CONTRIBUTIONS:				
Cash in bank, March 31, 1941—Special Areas Trust Account		34,737.23		
1942 Special Areas collections on provincial lands		114,786.78		
Department of Education Special Grant		100,000.00		
Appropriation No. 1134		56,408.66		
Appropriation No. 1181		23,196.58		
Appropriation No. 1180		10,000.00		
			339,129.25	
TOTAL				$847,879.04
PAYMENTS:				
Special Districts:				
Social Service taxes		$ 56,175.64		
Schools		201,675.77		
Hospitals		24,670.06		
Administration costs		56,408.66		
Provincial Mental Hospital		626.50		
Provincial Training School		2,157.10		
Mothers' allowances		5,479.02		
Child welfare		127.75		
Direct relief		2,828.39		
Medical relief		17,446.78		
Interest on agricultural advances		2,233.50		
Charitable and hospital bills		5,749.80		
Road maintenance cash		27,643.87		
Road maintenance applied on taxes		5,029.04		
Road maintenance applied on relief		4,717.97		
Pests and weeds		1,213.77		
Buildings		850.00		
Land Titles Office fees		2,522.20		
Purchase of equipment		22,478.66		
Maintenance of equipment		12,892.98		
International Business Machine costs		3,711.17		
Liquidating liabilities of former municipal districts in Special Areas		298.07		
Provincial Treasurer for administrative purposes		2,892.06		
Tilley East collections transferred to Department of Municipal Affairs		41,713.93		
Liquidation of debentures of former School Districts in the Special Areas		39,916.16		
			$541,458.85	
Special Areas:				
Construction of dams		$ 277.75		
Community pastures		7,376.31		
Grass seed		1,345.60		
Hay meadows		19.80		
Special Districts items charged to Special Areas Trust Account		687.24		
Miscellaneous		756.52		
			10,463.22	
TOTAL PAYMENTS				$551,922.07
CASH BALANCE				$295,956.97

CASH BALANCE

Special Districts Trust Account	$164,003.21
Special Areas Trust Account	131,953.76
	$295,956.97
Unpaid 1941-42 *Bills*:	
Interest on implemented loans	$ 3,205.37
Hanna Municipal Hospital loans	7,938.25
Interest on direct loans	3,502.74
Interest on agricultural advances	27,417.79
Blind pensions paid in June, 1942	109.18
Old Age Pensions paid in June, 1942	7,791.53
Arrears of hospital requisitions (Hanna) paid in May, 1942. Compromised from $89,695.17	22,000.00
Arrears of hospital requisitions (Vulcan) paid in May, 1942. Compromised from $7,578.37	3,000.00
	$ 74,964.86
1941 *Levies*:	
General tax	$269,851.14
Social Service tax	34,272.78
TOTAL LEVY	$304,123.92

J. Harvie,
Deputy Minister,
Department of Lands and Mines

ANNUAL REPORT

OF THE

Department of Lands and Mines

OF THE

PROVINCE OF ALBERTA

FOR THE

Fiscal Year Ended March 31st

1943

PUBLISHED BY ORDER OF THE LEGISLATIVE ASSEMBLY

EDMONTON:
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1944

To the Honourable J. C. Bowen,
Lieutenant-Governor of the Province of Alberta.

SIR:

I have the honour to submit the report of the Department of Lands and Mines for the fiscal year ended March 31st, 1943.

I have the honour to be, Sir,

Your obedient servant,

N. E. TANNER,
Minister of Lands and Mines.

Edmonton, March 14, 1944.

TABLE OF CONTENTS

PAGE

REPORT OF THE DEPUTY MINISTER 9

I.—ACTIVE SERVICE ENLISTMENTS

Report of the Statistician 26

II.—LANDS ADMINISTRATION

Report of the Provincial Lands Division 28

Report of the School Lands Division 32

III.—FORESTRY ADMINISTRATION

Report of the Forestry Division 34

IV.—FISHERIES AND GAME ADMINISTRATION

Report of the Fish and Game Commissioner 56

V.—MINING LANDS ADMINISTRATION

Report of the Mining Lands Division 75

VI.—TECHNICAL DIVISION

Report of the Technical Division 86

VII.—ACCOUNTS ADMINISTRATION

Report of the Accounting Division 101

VIII.—SPECIAL AREAS ADMINISTRATION

Report of the Special Areas Board 109

GOVERNMENT OF ALBERTA

DEPARTMENT OF LANDS AND MINES

Resulting from the transfer on October 1st, 1930, of Alberta's natural resources from federal to provincial control, the Department of Lands and Mines was on this date brought into being by the Alberta Government. The general purpose of the new Department was to be one of supervision and management of the resources in question.

Ministers of the Department, responsible at different periods for this administration, appear as follows:

Hon. R. G. Reid, appointed October 2nd, 1930,
Hon. Hugh W. Allen, appointed July 10th, 1934,
Hon. Charles C. Ross, appointed September 3rd, 1935,
Hon. N. E. Tanner, appointed January 5th, 1937.

CHIEF OFFICERS

DEPARTMENT OF LANDS AND MINES

March 31st, 1943

Honourable N. E. Tanner	*Minister of Lands and Mines*
John Harvie	*Deputy Minister of Lands and Mines*
T. C. Rankine	*Departmental Solicitor*
V. A. Wood	*Director of Lands*
M. Gossip	*Agent, Calgary Land Agency*
R. Cruickshank	*Agent, Peace River Land Agency*
H. H. Somerville	*Assistant Superintendent of Mining Lands*
H. Ingrey	*Inspector of Mining Rights*
T. F. Blefgen	*Director of Forestry*
E. S. Huestis	*Acting Assistant Director of Forestry*
F. W. Neilson	*Chief Timber Inspector*
A. Earnshaw	*Radio Superintendent*
E. S. Huestis	*Fish and Game Commissioner*
D. E. Forsland	*Superintendent of Game*
H. B. Watkins	*Superintendent of Fisheries*
T. W. Dalkin	*Superintendent of the Technical Division*
A. A. Millar	*Chief Inspector of Mines*
E. R. Edwards	*Acting Accountant*
J. L. Irwin	*Statistician*

Special Areas Board

Head Office: Hanna, Alberta

A. C. McCully	*Chairman*
D. M. Graham	*Secretary*
J. R. McBeath	*Member*
J. H. Todrick	*Supervisor, Edmonton*

Special District Agents

D. M. Graham	*Hanna*
R. B. Langley	*Oyen*
D. J. Wilson	*Consort*
A. D. McIntyre	*Lomond*

The Petroleum and Natural Gas Conservation Board

Head Office: Calgary

J. J. Frawley	*Chairman*
M. D. Kemp	*Member*

REPORT

OF THE

Department of Lands and Mines

1942-43

Honourable N. E. Tanner,
Minister of Lands and Mines,
Edmonton.

SIR:

I have the honour to submit the thirteenth Annual Report of the Department of Lands and Mines for the fiscal year ended March 31st, 1943.

As in the last two years it is possible to report once again advances made in production totals covering development of Alberta's natural resources, with consequent advances also in revenue secured.

Still another record is to be reported covering surplus on income account, which is accompanied by a decrease in total expenditures.

Under the heading of natural resources development, both oil and coal reached the highest production figures in the history of the province, oil for the first time passing the ten million barrel total and coal reaching almost to seven and three quarter million tons.

For the first time there appears in the report of the Accounting Division a brief picture to illustrate the noticeable volume of work for which the administration of this Division is responsible.

Figures covering the vast numbers of entries, official and interim receipts and other items of a similar nature are presented, which, in themselves alone, apart from many other duties, will give an idea of the sum total of work and responsibility which is necessarily involved.

DEPARTMENT'S REVENUE AND PRODUCTION, 1942-43

A new record was again established for the Department when a surplus on income account of $1,946,210.59 was reached for the year, an increase over last year's figure of $200,280.77. Total expenditure on income account came to $806,948.41, a decrease from last year of $40,606.91, due principally to the noticeable drop in fire-fighting expenses. Details of these various accounts, showing increases and decreases, appear in the Accounting Division's section of this Report.

Petroleum production for the calendar year 1942 showed an increase of 227,653 barrels in comparison with the preceding year. Natural gas consumption increased by 4,138,159 Mcf.

Coal, with the highest annual production total to be recorded in the province, increased by 784,215 tons. The manufacture of coke and briquettes attained record figures for the year also—coke with an increase of 1,218 tons and briquettes with an increase of 71,717 tons. Another record was established in the quantity of electrical power used in the operation of Alberta's coal mines, which increased by 5,518,189 k.w. hours.

A decrease is recorded in clay and shale mined during the year, which dropped 14,994 tons, with consequent decreases in the manufacture of bricks by 2,832,524, and the manufacture of tiles by 2,201 tons.

Lumber, manufactured from timber cut on provincial and school lands and on forest reserves, totalling 228,703,425½ F.B.M., showed a decrease of 43,641,703½ F.B.M. in comparison with last year.

Other production increases appearing for 1942 are as follows: stone, 4,086 tons; salt, 5,569 tons; cement, 175,528 barrels and lime 871 tons. Sand and gravel production decreased, however, by 474,840 tons.

Lands Administration

Land Agencies.—With automobile travel cut down to a minimum, the practice of inspectors calling upon homestead entrants to accept applications for patent had to be stopped. A system to replace it was introduced by the creation of temporary sub-agencies at suitable points, where such applications were received and where other departmental business was carried out. The temporary sub-agencies totalled 45. Land agencies during the year were continued at Calgary and Peace River and sub-agencies were in operation at Bonnyville, Lac La Biche, Athabaska, Hines Creek and Grande Prairie. The sub-agency at Lethbridge was closed.

Soil Survey Inspections.—Details covering soil survey inspections are given in the Land Division's report. The objective to be gained was the preparation of a soil classification map with a view to determining the suitability of land settlement in different areas. In addition to soil classification, other information dealing with topography, tree covering, costs of clearing, value of land, etc., was at the same time acquired. These, and other matters, general and statistical, covering provincial and school lands' administration, are dealt with in the Division's report.

Forest Service

Fire Season.—The smallest fire loss for seven years is emphasized with the publication of the 1942 figures, which offer a startling contrast when compared with the figures for 1941, most disastrous fire year in the life time of this Department.

Reasons, which make it possible to present this most satisfactory information, are given in detail in the Forestry Section of this Report. They were, of course, due to the extent of snowfall and bountiful precipitation through the usual danger periods of the year.

As in previous years an annual statement, dealing with Alberta's fire losses, appears on the next page.

Radio.—As a result of the welcome reduction in fire hazards, radio equipment was not put into operation as early as in previous years.

New installations were made at Calgary and Rocky Mountain House, which improved the service in the south of the province. A big power transmitter was also installed at Lac La Biche.

During the fire hazard period all look-out and headquarters stations stood by from eight to twelve hours per day and, with the operating portable and mobile sets, rangers and timber inspectors were able to contact look-out or headquarters stations in their zones with very little delay.

SUMMARY OF FIRE LOSSES WITHIN ALBERTA FOREST RESERVES

Period	Number of Fires	Area (Acres)	Salvable Timber M.f.b.m.	Salvable Timber (Cords)	Unsalvable Timber M.f.b.m.	Unsalvable Timber (Cords)	Cost of Suppression	Total Loss
October 1, 1930 to March 31, 1931	9	41.925	.....	.....	2.00	129.00	$ 551.67	$ 71.69
April 1, 1931 to December 31, 1931	31	52,218.05	2,370.50	3,086.00	6,295.73	111,599.00	17,624.12	154,651.47
Calendar Year 1932	32	2,555.75	8.00	15,863.00	3,845.00	1,005.60	3,491.04	8,790.73
Calendar Year 1933	39	29,275.88	26.75	1,201.00	19,188.25	108,414.00	18,409.92	95,796.93
Calendar Year 1934	47	21,963.00	1,510.00	9,200.00	2,661.00	209,550.00	31,118.51	96,195.87
Calendar Year 1935	12	6.50	.....	.....	.....	60.00	94.56	45.50
Calendar Year 1936	52	165,465.00	7,573.00	25.00	885,192.00	764,594.00	108,894.48	1,504,273.45
Calendar Year 1937	17	90.00	.....	.....	37,500.00	8.50	387.38	292.05
Calendar Year 1938	18	13,111.50	13,740.00	5.00	518.50	1.50	9,422.79	36,556.45
Calendar Year 1939	46	38,213.75	292.00	1,982.00	4,229.00	54,721.00	49,056.68	101,455.13
Calendar Year 1940	30	2,929.50	1,000.00	730.00	3.00	3,429.00	6,999.81	14,164.25
Calendar Year 1941	22	4,497.00	.....	3,000.00	345.50	2,028.00	2,694.96	15,432.25
Calendar Year 1942	6	18.75	.....	.....	.....	.....	119.43	9.75
TOTALS	361	330,386.605	26,520.25	35,092.00	959,779.98	1,255,539.60	$ 248,865.35	$2,027,735.52

SUMMARY OF FIRE LOSSES OUTSIDE ALBERT A FOREST RESERVES

October 1, 1930 to March 31, 1931	47	11,145.19	155.00	.....	3.75	.....	$ 686.64	$ 79,950.85
April 1, 1931 to December 31, 1931	591	552,658.07	134,536.00	104,199.00	122,690.50	684,625.50	82,088.89	712,835.79
Calendar Year 1932	347	133,562.14	274.75	12,215.00	40,627.15	132,743.00	15,320.51	152,085.58
Calendar Year 1933	249	64,489.12	4,383.50	13,953.50	41,694.50	59,545.00	16,971.75	100,008.43
Calendar Year 1934	193	36,907.00	3,404.50	3,159.00	547.50	14,464.00	7,050.51	29,825.77
Calendar Year 1935	85	6,313.25	160.00	1,195.00	1,513.00	5,371.00	1,558.90	5,722.50
Calendar Year 1936	196	38,989.00	2,374.00	23,116.00	659.00	6,017.00	13,647.81	45,656.85
Calendar Year 1937	358	835,169.00	14,702.00	33,113.00	251,544.00	609,837.00	54,952.28	1,088,173.90
Calendar Year 1938	503	1,745,234.00	35,382.50	23,054.00	650,844.50	1,974,651.50	207,632.70	2,009,679.82
Calendar Year 1939	453	390,925.50	1,305.00	19,336.00	128,129.00	537,186.00	99,241.41	540,655.08
Calendar Year 1940	283	471,314.75	200.00	150.00	141,861.00	775,736.00	60,231.67	939,866.77
Calendar Year 1941	423	1,350,927.50	43,710.00	118,480.00	201,674.50	1,905,499.00	167,793.57	2,035,547.18
Calendar Year 1942	209	325,797.00	9,950.00	810.00	38,246.00	247,933.00	40,426.74	356,924.13
TOTALS	3,937	5,963,431.52	250,537.25	352,780.50	1,620,034.40	6,953,608.00	$ 767,603.38	$8,096,932.65

SUMMARY OF FIRE LOSSES WITHIN AND OUTSIDE ALBERTA FOREST RESERVES

Period	Number of Fires	Area (Acres)	Salvable Timber M.f.b.m.	Salvable Timber (Cords)	Unsalvable Timber M.f.b.m.	Unsalvable Timber (Cords)	Cost of Suppression	Total Loss
October 1, 1930 to March 31, 1931	56	11,187.115	155.00	.....	5.75	129.00	$ 1,238.31	$ 80,022.54
April 1, 1931 to December 31, 1931	622	604,876.12	136,906.50	107,285.00	128,986.23	796,224.50	99,713.01	867,487.26
Calendar Year 1932	379	136,117.89	282.75	28,078.00	44,472.15	133,748.60	18,811.55	160,876.31
Calendar Year 1933	288	93,765.00	4,410.25	15,154.50	60,882.75	167,959.00	35,381.67	195,805.36
Calendar Year 1934	240	58,870.00	4,914.50	12,359.00	3,208.50	224,014.00	38,169.02	126,021.64
Calendar Year 1935	97	6,319.75	160.00	1,195.00	1,513.00	5,431.00	1,653.46	5,768.00
Calendar Year 1936	248	204,454.00	9,947.00	23,141.00	885,851.00	770,611.00	122,542.29	1,549,930.30
Calendar Year 1937	375	835,259.00	14,702.00	33,113.00	289,044.00	609,845.50	55,339.66	1,088,465.95
Calendar Year 1938	521	1,758,345.50	49,122.50	23,059.00	651,363.00	1,974,653.00	217,055.49	2,046,236.27
Calendar Year 1939	499	429,139.25	1,597.00	21,318.00	132,358.00	591,907.00	148,298.09	642,110.21
Calendar Year 1940	313	474,244.25	1,200.00	880.00	141,864.00	779,165.00	67,231.48	954,031.02
Calendar Year 1941	445	1,355,424.50	43,710.00	121,480.00	202,020.00	1,907,527.00	170,488.53	2,050,979.43
Calendar Year 1942	215	325,815.75	9,950.00	810.00	38,246.00	247,933.00	40,546.17	356,933.88
TOTALS	4,298	6,293,818.125	277,057.50	387,872.50	2,579,814.38	8,209,147.60	$1,016,468.73	$10,124,668.17

Timber Industry.—It was only the continuing problem of labour shortage which prevented the year under review from surpassing the previous year's record production in the manufacture of lumber. With this obstacle in the way, however, a shortage of 43,641,704 F.B.M. is reported in the statement which follows.

An increase in the number of timber berths and special timber berths were, however, granted to the smaller operators, the activities from which prevented the above mentioned decrease from becoming as great as the figure which at one time during the year had been estimated.

LUMBER MANUFACTURED FROM TIMBER CUT ON PROVINCIAL AND SCHOOL LANDS AND ON FOREST RESERVES

Fiscal Year	F.B.M.
1935-36	89,919,530
1936-37	104,492,420
1937-38	146,301,510
1938-39	122,450,579
1939-40	131,497,021
1940-41	185,752,504
1941-42	272,345,129
1942-43	228,703,425
Total	1,281,462,118
Decrease this year in comparison with last	43,641,704

Fisheries

Fish Hatchery at Calgary.—Through the generosity of Mr. James Cross of Calgary, who has made all the capital expenditures with regard to the erection of the Calgary Fish Hatchery, adjoining the Calgary Brewing and Malting Company's building, the province now operates the largest game fish hatchery in Canada.

Mr. Cross has also been instrumental in securing the most modern and up-to-date equipment for use in connection with the propagation of fish. Due to his public spirited action, greatly increased stocking of our streams will take place for the general benefit of all Alberta anglers.

Game Fish.—The introduction of a new angling permit, good for three consecutive days, was made during this year. The object was for the accommodation of anglers who, with only limited time to spare, might otherwise not consider a season's permit.

Rearing Ponds.—The construction of rearing ponds by a number of Fish and Game Associations, coupled with the co-operative work resulting from same, was a valued and appreciable effort of the year.

In addition to this, three large rearing ponds were, with assistance from Forestry officials, completed on a spring site at Bickerdike, near Edson. All rearing ponds were stocked with trout fingerlings.

Distribution of Game Fish.—Distribution of game fish during the year from rearing ponds to Alberta streams and lakes—trout, perch and forage minnows—totalled 1,318,450.

Whitefish Hatchery at Lesser Slave Lake.—A total of 72,850,000 whitefish eggs—eyed and fertilized—were distributed in twenty Alberta lakes and also in the Whitefish River from the Whitefish Hatchery at Lesser Slave Lake.

Commercial Fishing.—Commercial fish of all species taken during the year totalled 6,158,883 pounds.

In this connection the following comparative table is given.

TOTAL AMOUNT OF FISH TAKEN FOR COMMERCIAL PURPOSES AND VALUATIONS

Fiscal Year	Weight (lbs.)	Value to fishermen	Value as marketed
*1930-31	1,851,848	$ 70,624	$ 94,032
1931-32	3,337,980	115,928	189,928
1932-33	2,655,214	94,440	130,809
1933-34	3,566,356	131,124	200,755
1934-35	4,059,436	145,190	244,071
1935-36	4,921,542	200,394	287,726
1936-37	6,029,857	252,773	385,344
1937-38	6,201,917	252,771	464,842
1938-39	7,242,746	236,851	463,457
1939-40	8,661,781	202,107	574,732
1940-41	7,285,582	206,191	442,752
1941-42	5,920,099	198,400	437,137
1942-43	6,158,883	286,184	607,969
Totals	67,893,241	$2,392,977	$4,523,554
Increase this year in comparison with last	238,784	$ 87,784	$ 170,832

SUMMARY OF CONFISCATIONS AND PROSECUTIONS CAUSED BY INFRACTIONS OF THE FISHERIES REGULATIONS

Fiscal Year	Confiscations	Prosecutions
1937-38	188	132
1938-39	116	86
1939-40	119	134
1940-41	112	107
1941-42	59	78
1942-43	31	33
Totals	625	570
Decreases this year in comparison with last	28	45

*Six months period.

Game

Registered Trap-lines.—Registered trap-line certificates issued during the year under review were two and one half times the number issued during the preceding year. The number of such registrations in the northern part of the province continued to such an extent, that at the close of the year it was felt consideration could henceforth be given to the discontinuance of the general $2.00 trapping licence. Holders of this licence were therefore advised that in the following year these would be discontinued and that registered trap-lines must be secured to take their places.

Cougar and Wolf Bounty.—Due to reduction of cougar bounties in British Columbia, similar reductions became necessary in Alberta. Resulting from discontinuance of the wolf bounty in Saskatchewan, Alberta was compelled to recognize such bounties only on the western side of the province, where the Province of British Columbia was paying wolf bounties. Alberta, however, raised the payment of the bounty on wolf pups from $5.00 to $10.00.

Big Game and Birds Plentiful.—Big game was in abundance and the catch in fur was good with prices which rose quickly from low to high through the season. Native birds, together with the newly arrived pheasant, were also noticeably increased.

ALBERTA FUR PRODUCTION

Season	Number of Pelts	Valuation
1930-31	941,401	$1,118,027
1931-32	1,145,888	877,331
1932-33	1,215,094	1,074,884
1933-34	2,270,503	1,533,799
1934-35	1,850,625	1,474,530
1935-36	1,304,966	1,540,077
1936-37	2,068,118	2,170,121
1937-38	1,476,698	1,156,013
1938-39	2,273,826	1,345,130
1939-40	3,977,118	2,514,878
1940-41	2,601,424	2,806,073
1941-42	11,713,686	5,162,635
1942-43	2,468,306	5,067,172
Totals	35,307,653	$27,840,670
Decreases this year in comparison with last	9,245,380	$ 95,463

NOTE: The seasons given in the above table are from July 1st of one year to June 30th of the next. The heavy decrease in number of pelts for 1942-43 is due to the unusual number of rabbit and squirrel pelts taken in 1941-42.

Mining Lands Administration

Information dealing with quantities and valuations of Alberta's non-metallic minerals produced during the year are given in the Report of the Mining Lands Division. To this is added details covering mineral rights, solid, liquid and gaseous, revenue from fees, rentals, bonuses and royalties, reservations of areas for geological examination and acquisition of varying forms of mineral leases.

Leases dealt with.—Totals of leases issued from October 1st—date of natural resources transfer—to March 31st, 1943, are shown as follows: Leases active at date of transfer, 19,635; issued, 10,558; reinstated, 116; divided, 380; cancelled, 27,836; renewed, 354; active as at March 31st, 1943, 2,499. Areas covered by same are given in a separate statement.

Coal Royalties.—The table dealing with royalties in coal, produced in former years, is shown from the fiscal years 1907-08 to 1942-43 inclusive.

Salt.—Salt production showed still another increase in the year under review, reaching the record total of 22,179 tons, and therefore continued to show an increase in demand for this home product

SALT PRODUCTION

Calendar Year	Tons	Valuation
1938	3,995	$ 39,950
1939	3,322	33,220
1940	8,524	85,240
1941	16,610	166,100
1942	22,179	221,790
Totals	54,630	$546,300
Increase this year in comparison with last	5,569	$ 55,690

NOTE: The valuation of $10.00 per ton, which is shown, is based on a well-head price only, and has no relation to a wholesale price of the commodity, which would be considerably higher. Alberta salt development started in 1938. Prior to that year, production was insignificant and no official figures are available.

Petroleum and Natural Gas

Number of Turner Valley Crude Oil Wells.—Dating from June 16th, 1936, when crude oil was discovered in Turner Valley's limestone, annual totals, dealing with the completion of wells, were as follows:—

Calendar Year	Number of Wells
1936	2
1937	22
1938	36
1939	34
1940	36
1941	47
1942	20
Total	197
Decrease in comparison with last year	27

NATURAL GAS CONSUMPTION

Calendar Year	Mcf.
1941	28,305,429
1942	32,443,588

Petroleum and Natural Gas Conservation Board.—The appointment of Mr. J. J. Frawley, K.C., to Chairman of the Petroleum and Natural Gas Conservation Board and Mr. M. D. Kemp to Board Member took place during 1942. Mr. Frawley's appointment fills the vacancy created by the absence of Mr. Robert E. Allen, former Chairman, whose services were loaned to the United States Government at the request of Mr. Harold L. Ickes, Co-ordinator, at Washington, D.C.

Turner Valley Development.—Alberta's oil production in the calendar year 1942 exceeded, for the first time in her history, the ten million barrel mark, with an increase over 1941 of 227,653 barrels.

Other Alberta Fields.—Production from oil fields outside of Turner Valley for 1942 was as follows:

Field	Barrels
Vermilion	63,793
Taber	29,819
Wainwright	14,510
Princess	10,478
Red Coulee	10,107
Tilley	5,718
Dina	2,780
Del Bonita	1,653
Lloydminster	477
Total	139,335

In comparison with last year's production of 78,300 barrels from fields outside of Turner Valley, this total for 1942 shows an increase of almost one hundred per cent.

Vermilion and Taber are mainly responsible for this advance. Oil production from Vermilion field during the past two years has advanced in a manner which has been definitely encouraging. With an established market for its product, which is recovered by speedy drilling from shallow horizons, coupled with its brief but successful history, there is justification for the hope that this prairie oil field may develop into another major producing area within the province, of which there is now such urgent need.

Taber's rather spectacular advance, which, within the latter part of 1942 became sufficiently noticeable to place this area in second place amongst Alberta's producing oil fields outside of Turner Valley, was another satisfying development feature of 1942.

Reports regarding the Ram River No. 2 well test are awaited with interest. This area in the Foothills, about 100 miles West of Red Deer, contains in its

structure a formation of Devonian limestone, which, at the well's location, is present from the surface down.

Growing production of Alberta's oil fields, outside of Turner Valley, is significant and of first importance. A year or so ago such production was less than half of 1% of Turner Valley's total. In 1942 the figure rose to 1.37%. Whilst admitting that the difference between these totals is still a considerable one, the gap, nevertheless, is beginning at last to close.

Development of Bituminous Sands.—The fire at the McMurray Abasand plant, referred to in last year's report, caused serious delay in the important development work that was being carried out by this company in that area. The plant had just completed construction, and the production of crude oil, gasoline and diesel fuel oil was in operation, the production figures having been quoted in the last annual Oil Review.

Reconstruction which was handicapped by such present problems as priorities of steel, etc., was completed by mid-summer of 1942, and production was once again under way. From then to the end of November, 1942, the production totals were given as follows:

Bituminous sand mined	11,156 tons
Crude oil recovered from same	10,041 barrels

Alberta Oil Production.—On the next page is given an oil production table by calendar years from 1914 to 1942, inclusive, which is presented this year in greater detail than heretofore, giving cumulative as well as annual totals for all fields. This table contains certain revisions in totals, now made necessary by the receipt of additional data, which includes a deduction of 6,974 barrels in 1942 for storage loss at Vermilion.

Production totals of the four sub-divisions of Turner Valley's totals and the valuations—values of sales by primary producers—for each year are also shown.

British Empire Production.—Canada in 1942 once again took twelfth place amongst the world's oil producing countries, and took also a noticeable second place in British Empire oil production. With the loss of Brunei and Sarawak to the Japanese, the Empire oil countries were reduced from seven to five. Canada's percentage of the Empire's total for this year rose from 18.3 to 23.5. The following percentages covering 1942 oil production are given.

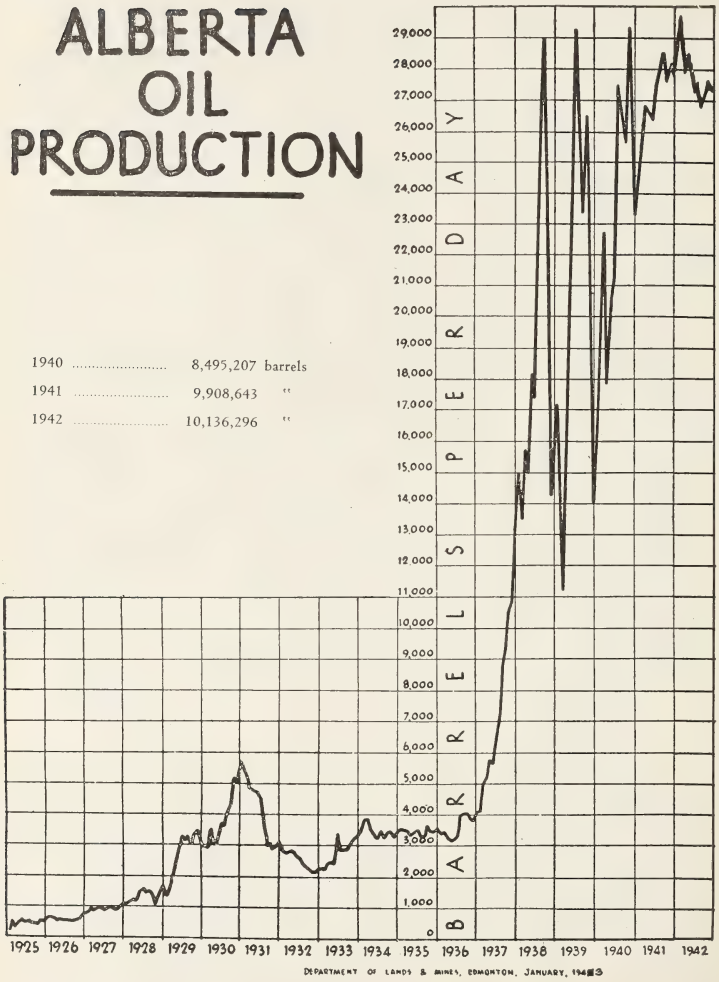
British Empire of World	2.15 per cent
Canada of British Empire	23.49 per cent
Alberta of Canada	97.86 per cent
Turner Valley of Alberta	98.61 per cent

In comparing the above percentages with those given in last year's report, a few slight changes will be noticed. Whilst a slight drop in British Empire of World percentages appears, Canada of British Empire has risen. Alberta of Canada is slightly reduced, resulting from the Northwest Territories entry into the field, and Turner Valley of Alberta is less as a result of oil production in fields outside of Turner Valley, which in 1942 almost doubled their output.

A comparative statement covering British Empire Oil production over a period of years is given on the next page.

ALBERTA OIL PRODUCTION

1940	8,495,207	barrels
1941	9,908,643	"
1942	10,136,296	"



SUMMARY OF OIL PRODUCTION IN ALBERTA BY CALENDAR YEARS

Quantities in Barrels of 35 Imperial Gallons

Calendar Years	TURNER VALLEY								FIELDS OUTSIDE TURNER VALLEY																		ALBERTA TOTALS		†VALUATIONS		Calendar Years
	LIMESTONE				Crude Oil Recovered from above the Limestone		Turner Valley Totals		TABER		VERMILION		WAINWRIGHT		RED COULEE		PRINCESS		TILLEY		DINA		DEL BONITA		SKIFF		LLOYDMINSTER		MOOSE DOME		KEHO		TOTALS of Fields Outside Turner Valley					
	Oils Wells		Gas Wells		Natural Gasoline				Heavy Crude		Heavy Crude		Heavy Crude		Light Crude		Heavy Crude		Heavy Crude		Heavy Crude		Light Crude		Heavy Crude		Heavy Crude		Light Crude		Light Crude							
1914-21	.....	.....	.....	.....	76	76	56,599	56,599	56,675	*56,675	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	56,675	56,675	$ 218,200	$ 218,200	1914-21
1922	.....	.....	.....	.....	9,237	9,313	6,559	65,158	15,784	72,471	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	15,796	72,471	64,047	282,247	1922
1923	.....	.....	.....	.....	8,060	17,373	1,943	65,101	10,066	82,474	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10,003	82,474	41,333	323,580	1923
1924	.....	.....	.....	.....	13,128	30,501	2,932	68,033	17,749	100,223	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	17,749	100,223	88,095	411,675	1924
1925	.....	.....	169,008	170,697	8,951	39,452	2,926	70,959	180,885	281,108	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	180,885	281,108	717,271	1,128,946	1925
1926	.....	.....	203,725	374,422	7,283	46,735	2,609	73,568	213,611	494,725	.....	.....	.....	.....	5,981	5,981	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5,981	5,981	219,598	500,706	914,707	2,043,653	1926
1927	.....	.....	284,595	659,017	5,854	52,589	38,808	112,376	329,247	823,982	.....	.....	.....	.....	2,526	8,507	.....	.....	.....	.....	.....	.....	.....	.....	529	529	.....	.....	.....	.....	3,055	9,036	332,312	833,018	1,529,477	3,573,130	1927
1928	.....	.....	410,448	1,069,465	.....	52,589	70,910	183,286	481,538	1,305,340	.....	.....	.....	.....	7,952	16,459	.....	.....	.....	.....	.....	.....	.....	.....	222	751	.....	.....	.....	.....	8,174	17,210	489,532	1,322,550	1,727,824	5,300,954	1928
1929	.....	.....	908,411	1,977,876	.....	52,589	73,181	256,467	981,593	2,286,932	.....	.....	.....	.....	12,332	28,791	1,328	1,328	.....	.....	2,839	2,839	.....	.....	1,432	2,183	.....	.....	.....	.....	17,931	35,141	999,523	2,322,073	3,424,021	8,724,975	1929
1930	40,900	40,900	1,275,202	3,253,078	.....	52,589	50,897	307,364	1,366,969	3,653,931	.....	.....	.....	.....	9,739	38,530	53,917	55,245	.....	.....	1,873	4,712	.....	.....	3,731	5,914	.....	.....	.....	.....	69,260	104,401	1,436,259	3,758,332	4,557,473	13,282,448	1930
1931	63,969	104,869	1,281,341	4,534,419	.....	52,589	26,936	334,300	1,372,241	5,026,177	.....	.....	.....	.....	7,142	45,672	65,066	120,311	.....	.....	10,362	15,074	.....	.....	.....	5,914	.....	.....	.....	.....	82,570	186,971	1,454,816	5,213,148	3,977,788	17,260,236	1931
1932	52,409	157,278	802,108	5,336,527	.....	52,589	21,757	356,057	876,274	5,902,451	.....	.....	.....	.....	7,003	52,675	34,315	154,626	.....	.....	.....	15,074	562	562	.....	5,914	.....	.....	.....	.....	41,880	228,851	918,154	6,131,392	2,696,907	19,957,143	1932
1933	49,601	206,879	717,154	6,053,681	185,781	238,370	23,915	379,972	976,417	6,878,902	.....	.....	.....	.....	5,276	57,951	29,708	184,334	.....	.....	.....	15,074	546	1,108	.....	5,914	.....	.....	803	803	36,333	265,184	1,012,784	7,144,086	2,694,310	22,561,453	1933
1934	61,249	268,128	734,891	6,788,572	414,324	652,694	22,307	402,279	1,232,779	8,111,673	.....	.....	.....	.....	11,779	69,730	20,276	204,610	.....	.....	.....	15,074	561	1,669	510	6,424	.....	.....	152	955	33,278	298,462	1,266,049	8,410,135	3,031,446	25,592,899	1934
1935	61,302	329,430	650,149	7,438,721	496,681	1,149,375	18,903	421,182	1,227,035	9,338,708	.....	.....	.....	.....	14,638	84,368	20,536	225,146	.....	.....	.....	15,074	195	1,864	1,564	7,988	.....	.....	.....	955	36,933	335,395	1,263,968	9,674,103	2,856,029	28,448,928	1935
1936	220,552	549,982	451,396	7,890,117	602,360	1,751,735	13,011	434,193	1,287,339	10,626,027	.....	.....	.....	.....	15,057	99,425	16,262	241,408	.....	.....	.....	15,074	1,480	3,344	310	8,298	.....	.....	.....	955	33,109	368,504	1,320,448	10,994,531	2,918,730	31,387,658	1936
1937	1,787,421	2,337,403	311,549	8,201,666	657,169	2,408,904	10,589	444,782	2,766,728	13,392,755	600	600	.....	.....	13,459	112,884	13,790	255,198	.....	.....	1,642	16,716	.....	3,344	.....	8,298	.....	.....	655	955	30,146	398,650	2,796,874	13,791,405	4,913,960	36,281,618	1937
1938	5,999,970	8,337,373	150,542	8,352,208	531,434	2,940,338	9,192	453,974	6,691,193	20,083,893	15,098	15,698	.....	.....	12,985	125,869	13,818	269,016	.....	.....	6,383	23,099	615	3,959	.....	8,298	.....	.....	3,064	3,719	51,963	450,613	6,743,101	20,534,506	8,639,488	44,921,106	1938
1939	7,162,962	15,500,335	88,101	8,440,309	296,787	3,237,125	8,431	462,405	7,556,283	27,640,174	3,720	19,418	202	202	11,624	137,493	13,022	282,038	515	515	.....	.....	.....	3,633	26,732	2,073	6,032	.....	.....	8,298	348	348	2,074	5,793	.....	955	37,211	487,824	7,593,492	28,127,998	9,289,580	54,210,686	1939
1940	8,097,414	23,597,749	75,602	8,515,911	274,172	3,511,297	7,309	469,714	8,454,455	36,094,671	.....	19,418	10,817	11,019	7,527	145,020	12,177	294,215	.....	515	.....	4,746	31,478	3,444	9,476	.....	8,298	1,648	1,996	351	6,144	.....	955	40,710	528,534	8,495,207	36,623,205	10,503,249	64,713,935	1940
1941	9,443,143	33,040,892	88,064	8,603,975	293,122	3,804,419	6,014	475,728	9,830,369	45,925,014	5,600	25,018	22,051	33,070	11,733	156,753	11,626	305,841	19,587	20,102	.....	2,894	34,372	4,393	13,869	.....	8,298	416	2,412	.....	6,144	.....	955	78,300	606,834	9,908,643	46,531,848	13,809,708	78,523,643	1941
1942	9,621,326	42,662,218	74,587	8,678,562	302,216	4,106,635	5,806	481,531	10,003,955	55,928,949	29,819	54,837	56,819	89,889	14,510	171,263	10,107	315,948	10,478	30,580	5,718	5,718	2,780	37,152	1,653	15,522	.....	8,298	477	2,889	.....	6,144	.....	955	132,361	739,195	‡10,136,296	56,668,144	15,517,266	94,040,909	1942

NOTE: The above detailed Alberta oil production table contains revisions based for the most part on additional data now received. The most noticeable change is created by Royalite 4.

Figures in light faced type represent annual totals, and in **black faced type** the cumulative totals up to the end of the calendar year shown in the column in which they appear.

Changes in classification of wells have been made on the basis of gas/oil ratio—30 Mcf./bbl.—which is the dividing line between oil wells and gas wells. Earlier tabulations also listed production from Royalite 1 and 3 with gas wells on basis of gravity. This production is now transferred to shallow horizon recoveries above the limestone.

From 1921 to 1927, natural gasoline was derived from horizons above the limestone; from 1933 onward, from the limestone.

*Estimated. Production from 1914 to 1921 cannot be substantiated in detail, and is probably a minimum figure. Southern Alberta 1, later completed as Dalhousie 1, was the largest producer.

†Valuations. Value of sales by primary producers have been revised after receiving considerable additional information on the years 1923 to 1930. They must still, however, be considered as only rough estimates for early years, although they no doubt represent the probable value of oil produced at that time. During later years, actual sales of oil by primary producers are shown.

‡Net production total after deducting storage loss of 6,974 barrels.

PETROLEUM PRODUCTION IN THE BRITISH EMPIRE, 1932 TO 1942 INCLUSIVE

Country	1932		1933		1934		1935		1936	
	Barrels	Per Cent	Barrels	Per Cent	Barrels	Per Cent	Barrels	Per Cent	Barrels	Per Cent
Trinidad	10,126,121	43.1	9,561,353	41.2	10,894,363	41.2	11,671,224	40.7	13,237,030	39.2
Canada	1,044,412	4.4	1,145,333	4.8	1,401,895	5.3	1,447,204	5.0	1,504,287	4.5
Bahrein Island	902	.....	31,377	0.1	185,072	1.1	1,264,807	4.4	4,644,735	13.7
Burma	7,073,437	30.1	7,114,311	30.0	7,278,859	27.5	7,181,113	25.1	7,587,718	22.5
Brunei	1,200,026	5.1	2,035,656	8.6	2,705,350	10.2	3,302,905	11.5	3,296,938	9.7
India	1,743,878	7.4	1,628,803	6.9	1,921,863	7.3	2,037,810	7.1	1,978,329	5.8
Sarawak	2,329,733	9.9	2,206,815	9.3	1,942,591	7.4	1,776,593	6.2	1,547,882	4.6
Total British Empire	23,518,509	100.0	23,723,648	100.0	26,429,993	100.0	28,681,656	100.0	33,796,819	100.0
World Total	1,306,714,101		1,438,767,449		1,517,121,671		1,651,993,118		1,797,993,578	
Per Cent, British Empire of World		1.80		1.65		1.74		1.74		1.88

Country	1937		1938		1939		1940		1941		1942	
	Barrels	Per Cent	Barrels	Per Cent	Barrels	Per Cent	Barrels	Per Cent	Barrels	Per Cent	Barrels	Per Cent
Trinidad	15,502,989	36.8	17,737,060	35.5	19,270,000	37.7	20,300,000	38.2	21,150,000	38.5	21,500,000	48.8
Canada	2,943,750	7.1	6,956,811	14.0	7,843,780	15.2	8,723,982	16.5	10,123,904	18.4	10,364,796†	23.5
Bahrein Island	7,762,264	18.4	8,298,000	16.7	7,588,560	14.8	7,200,000	13.5	7,070,000	12.9	7,250,000	16.4
Burma	7,847,553	18.5	7,499,500	15.0	7,396,000	14.4	7,750,000	14.6	7,900,000	14.3	2,500,000	5.6
Brunei	4,397,038	10.5	5,387,210	10.8	5,755,000	11.1	5,742,000	10.7	5,245,000	9.6	‡	.....
India	2,161,653	4.9	2,330,200	4.7	2,164,000	4.2	2,150,000	4.1	2,245,000	4.0	2,500,000	5.7
Sarawak	1,655,565	3.8	1,624,880	3.3	1,327,000	2.6	1,321,000	2.4	1,275,000	2.3	‡	.....
Total British Empire	42,270,812	100.0	49,833,661	100.0	51,344,340	100.0	53,186,982	100.0	55,008,904	100.0	44,114,796	100.0
World Total	2,046,650,389		1,979,268,510		2,068,667,520		2,158,123,000		2,227,125,000		2,050,951,000	
Per Cent, British Empire of World		2.06		2.51		2.48		2.46		2.46		2.15

†In the total of 10,364,796 barrels shown in this table for Canada in 1942, 10,143,270 barrels or 97.86 per cent were produced in Alberta.

‡During the brief period, early in 1942 before the scorched earth policy was put into effect in Borneo, there was some oil production in both Brunei and Sarawak, but the totals are unknown.

Coal

Alberta in 1942 produced 7,754,279 tons, valued at $22,562,352, the highest tonnage ever produced in the province. The second highest year came in 1928. There is a difference exceeding 400,000 tons between these two years, the total for 1928 reaching 7,336,330 tons. Not included in the 1942 tonnage is coal mined by farmers under permit for their own use, which totalled 145 tons.

The development of Alberta's vast coal reserves represented the first pioneer mining industry in the province. The industry, started nearly sixty years ago, has progressed considerably over this period of time. In the first year—1886—Alberta mined 43,200 tons of coal, valued at $81,112, to be compared with the production in 1942, the record year, of 7,754,279 tons, valued at $22,562,352. Total production from 1886 to 1942, inclusive, is given at 188,703,011 tons, valued at $578,335,289.

Alberta's present accessible coal reserves have been estimated at an approximate total of 61 billion tons. In considering this enormous potential area within the province, it must immediately be realized that only a small relationship exists between it and the relatively small annual totals of production which have appeared over this lengthy period, however spectacular the grand total may appear.

It is interesting to speculate as to just what heights these figures might reach if Alberta, which is the coal province as well as the oil province of Canada, were able to develop her coal on a scale more commensurate with her capacity to produce. Insufficient subventions, however, together with other problems, have prevented this in the past. The production table which follows shows totals from the date of the natural resources transfer to the province in 1930 up to 1942.

COAL PRODUCTION

Calendar Year	Tonnage	Valuation	Calendar Year	Tonnage	Valuation
1930	5,755,911	$ 19,379,000	1937	5,551,682	$ 14,434,970
1931	4,564,290	13,415,745	1938	5,230,025	13,702,983
1932	4,870,030	13,441,193	1939	5,518,105	14,454,328
1933	4,714,784	12,197,339	1940	6,205,088	16,334,323
1934	4,748,848	12,440,617	1941	6,970,064	19,337,420
1935	5,462,973	13,946,338	1942	7,754,279	22,562,352
1936	5,696,375	14,720,004			
TOTALS				73,042,454	$200,366,612
Increase this year in comparison with last				784,215	$ 3,224,932

Disposition of Alberta Coal in 1942.—Coal sold for consumption in Alberta totalled 1,474,795 tons; sold for consumption in other provinces of Canada, 2,733,485 tons; sold to the United States, 98,197 tons; sold to railway companies, 2,864,586 tons; used in making briquettes, 184,933 tons; used in making coke, 107,410 tons; used under colliery boilers, 168,193 tons; used by colliery railways, 6,551 tons; put to stock, 45,517 tons and put to waste 128,017 tons. These tonnages include coal lifted from stock and waste heaps, a total which is not included in the yearly production total already given.

PRODUCTION OF COKE AND BRIQUETTES

Calendar Year	Coke (Tons)	Briquettes (Tons)
1930	.....	24,111
1931	.....	15,102
1932	2,183	13,582
1933	49,279	16,104
1934	59,703	15,906
1935	63,428	18,812
1936	65,239	21,015
1937	65,967	27,044
1938	68,692	39,239
1939	68,913	46,510
1940	70,753	66,127
1941	70,354	126,188
1942	71,572	197,905
TOTALS	656,083	627,645
Increases this year in comparison with last	1,218	71,717

Disposition of Electrical Power for Alberta Coal Mines in 1942.—Purchased electrical power used in Alberta coal mines during the calendar year 1942, totalled:

ELECTRICAL POWER USED FOR OPERATION OF ALBERTA COAL-MINES

Calendar Year	K.w.hrs.
1930	25,003,606
1931	16,918,625
1932	14,875,890
1933	17,611,959
1934	19,447,621
1935	23,111,373
1936	24,912,243
1937	25,483,749
1938	24,611,920
1939	27,575,926
1940	31,660,119
1941	35,973,384
1942	41,491,573
TOTAL	328,677,988
Increase this year in comparison with last	5,518,189

Shale and Clay Mined

Operation of 5 shale pits was carried out during the year from which 29,115 tons of shale and clay, 10,760,526 bricks and 5,879 tons of hollow tile were produced.

SHALE AND CLAY MINED

Calendar Year	Shale and Clay Mined (Tons)	Bricks Manufactured (Number)	Tiles Manufactured (Tons)
1930	67,517	22,007,045	.....
1931	23,855	7,091,080	2,825
1932	8,446	3,444,010	182
1933	3,234	1,221,060	.....
1934	13,561	4,398,032	1,171
1935	20,258	7,349,300	.....
1936	24,588	8,963,384	.....
1937	27,144	9,946,794	252
1938	19,929	7,609,314	1,640
1939	27,236	8,194,685	2,649
1940	35,614	9,885,326	5,712
1941	44,109	13,593,050	8,080
1942	29,115	10,760,526	5,879
TOTALS	344,606	114,463,606	28,390
Decreases this year in comparison with last	14,994	2,832,524	2,201

Mines Branch Annual Report.—Statistical information covering Alberta's coal-mining activities and production of shale and clay mined for the calendar year 1942 is given in detail in the published Annual Report of the Mines Branch, Department of Lands and Mines, for this period, which appears as a separate publication to this report.

Technical Division

Issue of Notifications (*Land Patents*).—The following comparative statement shows the number of notifications and acreage covered thereby for the fiscal years from 1930-31 to 1942-43, inclusive:

NOTIFICATIONS ISSUED

Fiscal Year	Number of Notifications	Area, Acres
1930-31	23	3,019.710
1931-32	784	111,424.478
1932-33	1,260	178,887.233
1933-34	1,106	165,224.553
1934-35	2,006	324,611.398
1935-36	2,965	433,529.126
1936-37	2,231	325,615.379
1937-38	2,266	382,382.437
1938-39	2,874	517,435.896
1939-40	2,097	301,431.972
1940-41	2,058	295,649.119
1941-42	1,563	229,566.606
1942-43	1,516	229,699.519
TOTALS	22,749	3,498,477.426
Increases and Decreases in comparison with last year	—47	+132.913

Exchanges of Lands.—Under the exchange of land policy, 31 residents of the province, mostly old time settlers of the Special Areas, benefitted by exchanging their present land holdings for other areas of equal size in locations which proved to be more favourable. Details of these exchanges are given in the Technical Division's report for the period under review.

Government Controlled Lands in Special Areas.—Three maps also accompany the Division's report showing government lands—unpatented Crown lands, tax recovery and revestment lands—in the areas of Sounding Creek-Neutral Hills, Berry Creek-Sullivan Lake and Bow West.

Additions to Special Areas.—Two additional areas are now included in the Special Areas district, details of which are given in the Division's report.

Air Landing Fields.—Under this heading detailed information is given regarding the many activities surrounding provincial air landing fields.

Maps and Plans.—Completion is now reported of the Alberta map showing general standing of lands and their different classifications. The information is given on sectional sheet maps, with scale three miles to the inch. These are mounted on linen and bound in two volumes. Details of the completion of other maps are also given.

Photostat Machine.—Use of the photostat machine was even more general than in the previous record year. The number and variety of applications for which the machine was needed are described in the Division's report.

Recordak and Mimeograph Machines.—The work completed during the year by these two machines, particularly the former in its recording on films of a great number of registers and files, relieving thereby much congestion in storage space, is discussed in detail.

Mineral Taxation.—A review of the Mineral Taxation Act of 1941 is dealt with regarding its administration. For the fiscal year 1941-42, $75,120.93 was collected under the Act, as compared with $94,364.68 for 1942-43.

Staff

With further depletions of staff throughout the year, added to new complications arising out of wartime conditions, the functions of the Department were carried out with increasing difficulty. In face of these problems, which included

of course the inexperience of new personnel, the staff of this Department satisfactorily carried out its duties, which were numerous and responsible. As stated in last year's report this constituted important service on the home front—to keep things going for the present and at the same time prepare as much as possible for the many future responsibilities which may present themselves in a new world of reconstruction.

I wish to express my appreciation once more to the departmental staff, not only for their realization of all these matters, but also for service well given in the face of many problems.

Individual detailed reports from the various Divisions of the Department follow.

Your obedient servant,

J. Harvie,
Deputy Minister.

Edmonton, January 28th, 1944.

Active Service Enlistments

REPORT OF THE STATISTICIAN, J. L. IRWIN

The list of former members of this Department, at present on Active Service, now totals 66. Sixty-nine enlistments have been made but three names have been taken off. The first is that of D. J. Young, R.C.A.F., who tragically lost his life during flying operations, which was mentioned in last year's Report. The other two are A. Peart of the Edmonton Regt. (49th Bn., C.E.F.) and Miss M. L. Wedenkamp, W.D., R.C.A.F., who have now received their discharges.

Active Service promotions since the last Report was issued contain the names of E. P. Shaver, R.C.N.V.R. and Miss Pearl M. Brent.

Lieutenant Commander Shaver is now Commander Shaver, stationed on the Canada east coast, and Miss Brent has been promoted from Captain to Major, and is at present the Officer Commanding 103 Depot, C.W.A.C., at Kingston, Ontario.

With reference to Active Service transfers from this Department, as stated in the last Report, civil servants, who are on the permanent list, are given indefinite leave of absence until the end of the war, or until they are discharged from whatever Branch of the Service with which they have been engaged, when they become entitled to re-employment in the same capacity as, or similar capacity to that which existed prior to their enlistment.

In the last Report but one, special mention was made of Squadron Leader—at that time Pilot Officer—D. S. Florence, formerly of this Department, to the effect that he had been awarded the Distinguished Flying Cross.

Within recent months news has come through of a further award—a bar to his D.F.C. The presentation was made at Uplands airport, Ottawa, by the Governor General, the Earl of Athlone. Squadron Leader Florence, a former navigator overseas, is now senior navigation officer with a mail squadron. The receipt of this new honour is something of which the Department, needless to say, is proud, and for which it sends to the recipient its warmest congratulations.

Once again the members of this Department send to their old friends of the Department, now on Active Service in the Navy, Army and Air Force, the most earnest wishes for their safe and happy return.

The present Active Service list of the Department is as follows:—

MEMBERS OF THE STAFF WHO HAVE ENLISTED FOR ACTIVE SERVICE UP TO AND INCLUDING JANUARY 18th, 1944

Adin, Robert Garbutt	June 30th, 1941	R.C.A.F.
Alexander, John Playfair	Nov. 25th, 1939	R.C.A.F.
Ambrose, George Russell	June 9th, 1940	Veterans' Home Guard
Anderson, Charles Graham	June 30th, 1941	R.C.A.F.
Arcand, Romeo	July 1st, 1940	R.C.A.F.
Baker, Alma Richard	Feb. 13th, 1943	R.C.A.F.
Barber, James Donald	Jan. 8th, 1942	R.C.A.F.
Barnard, Edmund Dunbar	Sept. 6th, 1939	R.C.C.S.
Baxter, Robert Daniel	Nov. 13th, 1939	R.C.A.M.C.
Bennett, Harold Enniss	May 16th, 1942	R.C.A.F.
Bowen, Richard Ludger	June 25th, 1940	Calgary Highlanders
Brennan, William Robert	Aug. 30th, 1941	R.C.A.F.
Brent, Pearl Minerva	Oct. 28th, 1941	C.W.A.C.
Brick, Hiram Allan	May 31st, 1941	R.C.A.F.
Browne, Owen	Sept. 9th, 1939	Edmonton Regiment
Bryant, Harold James Patrick	Feb. 1st, 1941	Can. Provost Corps
Campbell, Jack Gordon	July 5th, 1942	Edmonton Fusiliers
Cragg, William Edward	Oct. 31st, 1941	Artillery
Craig, Ace Vincent	May 6th, 1940	R.C.N.V.R.
Craig, Helen Mary	June 2nd, 1942	R.C.A.F. (W.D.)
Dalphond, Melville	June 1st, 1940	R.C.A.F.

DeLancey, Arthur L.	Dec. 20th, 1942	R.C.N.V.R.
Dempsey, Harry Varner	May 1st, 1943	R.C.A.F.
Edgecombe, Rodney Wilson	Jan. 17th, 1944	R.C.A.F.
Fraser, Carroll Monroe	Sept. 22nd, 1941	R.C.A.F.
Gauthier, Lawrence Peter	Feb. 15th, 1941	R.C.A.F.
Gowdie, Thomas	Oct. 31st, 1939	R.C.M.P. for duration
Hinman, Grant W.	June 30th, 1942	R.C.A.F.
Hughes, Charles Granville	April 3rd, 1943	Canadian Infantry
Hutchinson, James Alexander	Oct. 27th, 1939	R.C.A.F.
Keats, Frederick Vernon	April 22nd, 1940	R.C.A.F.
Krause, Reinholdt Frederick	Sept. 18th, 1939	61st Battery, R.C.A.
Langford, Edward	Oct. 13th, 1942	Canadian Army
Lashbrook, Charles S. H.	April 22nd, 1942	R.C.A.F.
Lavoie, Arnold James	June 1st, 1940	South Alta. Regiment
Longson, Burgess	July 29th, 1940	R.C.A.S.C.
Macomber, Ralph	Aug. 16th, 1941	R.C.A.F.
Magneison, James Alexander	May 28th, 1941	R.C.A.F.
Maneluik, Lydia	June 2nd, 1942	R.C.A.F. (W.D.)
Marr, Francis Barbour	Aug. 30th, 1940	R.C.N.V.R.
Maynard, George Frederick	April 11th, 1942	R.C.A.F.
Miller, Ethelyn Maureen	Sept. 27th, 1941	C.W.A.C.
McCardell, William Henry	March 13th, 1940	R.C.A.F.
McCracken, Rodney Ellis	Oct. 31st, 1942	R.C.A.F.
McKee, Robert Maxwell	Jan. 4th, 1942	R.C.A.F.
McKinnon, Ian Nicholson	May 2nd, 1940	R.C.A.F.
Newsome, Roland Thomas	Sept. 21st, 1940	R.C.N.V.R.
Patrick, John William	March 8th, 1942	R.C.A.F.
Perry, Charles Edward	Jan. 31st, 1943	R.C.A.F.
Pinkerton, Harold	Dec. 10th, 1941	R.C.A.F.
Rees, David Brinley	Nov. 23rd, 1940	R.C.A.F.
Robertson, Ernest Ronald	May 7th, 1941	Anti-Tank Battery
Russell, Isobel Adair	Sept. 16th, 1941	C.W.A.C.
Scott, Charles Wyard	May 12th, 1942	R.C.A.F.
Shaver, Everett Phelps	Jan. 31st, 1940	R.C.N.V.R.
Shillabeer, Walter Ernest	Oct. 31st, 1939	R.C.N.V.R.
Sloan, Gilbert K.	May 28th, 1941	R.C.A.F.
Smith, Donald Bruce	May 15th, 1943	R.C.N.V.R.
Smith, Elizabeth Victoria	March 16th, 1942	C.W.A.C.
Sparrow, Francis Devereaux	July 28th, 1941	R.C.A.F.
Steffin, Paul Nick	May 16th, 1942	R.C.A.F.
Strate, Lewis Dee	May 20th, 1941	R.C.A.S.C.
Sturrock, Edward Neilson	Jan. 18th, 1942	R.C.A. Pay Corps
Waikle, L. L.	Feb. 10th, 1942	Veterans' Home Guard
Walker, Daniel Revie	Aug. 15th, 1940	R.C.A.F.
Yakimchuk, Sam	Nov. 10th, 1942	R.C.A.F.

Provincial and School Lands Administration

REPORT OF THE DIRECTOR OF LANDS, V. A. WOOD

Provincial Lands

The shift out of wheat into coarse grains and flax-seed was again encouraged by the Federal Government, as a result of the wheat acreage reduction programme.

The Department completed landlord applications for wheat acreage reduction payments for all leases and cultivation permits and, up to the end of the fiscal year, the total amount received was as follows:—

Special Areas	$11,907.85
Tax Recovery	2,555.39
School Lands	10,736.16
Provincial Lands	977.90
	$26,177.30

Cool, wet weather delayed seeding operations, and very little grain was in the ground by the 1st of May, 1942, except in the south-east portion of the province and in the Peace River district.

Due to rust, frost and heavy rains at harvest, the grade of all grains was not as high as that of last year. The wheat crop this past year, however, was a record in average yield per acre. The wheat yield varied from 16 bushels in a few districts to 40 bushels in other areas. Oat yield varied from 40 to 80 bushels, barley from 25 to 50, flax from 5 to 20 and rye from 10 to 30.

Threshing progress was very disappointing on account of cold and snow and in some areas threshing had not been completed by the end of the year.

The quota system was again in operation and at the end of the fiscal year had only reached 14 bushels to the acre. This has caused a great reduction in revenue, as the Department could only insist on payments proportionate to the crop share. In some cases lessees purchased the Department's share of coarse grains, but for the most part wheat was stored on the leaseholds.

Last year the quota raised rapidly and was removed altogether before the end of the calendar year.

The Canadian Wheat Board remained in operation with a price of 90c per bushel, No. 1 Northern, at Port Arthur or Vancouver, an advance of 20% over last year.

This Department continued its policy of not accepting any applications for cultivation and grazing leases, except in cases where at least one-third of the total area applied for already had been cultivated.

Owing to Dominion Government regulations to cut down travel by automobile, the practice of inspectors calling upon homestead entrants to accept applications for patent was discontinued. In place of this, the inspectors held temporary sub-agencies at convenient points to accept such applications and transact other departmental business. Temporary sub-agencies held totalled 45, and 545 items of business were received from these offices.

Land agencies were maintained at Calgary and Peace River. Sub-agencies were maintained at Bonnyville, Lac La Biche, Athabaska, Hines Creek and Grande Prairie. The Lethbridge sub-agency was discontinued.

Instructions were received that the minimum requirement for a homestead, second homestead or soldier grant would be 15 acres of breaking at a cost of not

less than $10.00 per acre for clearing and breaking, and the usual proportion of cultivation. Where residence has been performed in the vicinity, a minimum of 25 acres must be broken at a cost of $10.00 per acre for clearing and breaking.

Additional areas were added to the agricultural lease area in the Peace River district and west of the 5th meridian, in the Edmonton district.

The following regulations were estabilshed by Order in Council during the fiscal year:—

Provincial Grazing Reserves,

Control and Supervision of Provincial Grazing Reserves and Community Pastures by an Incorporated Association,

Conditions under which Right of Entry may be obtained upon land,

Miscellaneous Leases for residential, commercial, fur ranching, gardening and other purposes which do not come under any other set of lease regulations,

Six year Cultivation Leases in the south-eastern portion of the Province to applicants who had cultivated the area previous to making application.

In view of representations received, the commencement date for cutting hay in 1942 on provincial and school lands was changed from the 25th to the 10th of July.

With reference to lessees on active service, a ruling was received that it would not be necessary for a lessee's wife to furnish a power of attorney when her husband was absent on such service, with a view to assuming his responsibility.

Regarding the drafting Recommendations to Council, instructions were received that each Divisional head of the Department should assist the Departmental Solicitor by becoming responsible for this undertaking.

SOIL SURVEY INSPECTIONS

Requests for inspections outstanding as at April 1st, 1942	121
Reports called, April 1st, 1942 to March 31st, 1943	207
Reports cancelled, April 1st, 1942 to March 31st, 1943	9
Reports received, April 1st, 1942 to March 31st, 1943	233
Reports outstanding as at March 31st, 1943	86

The area covered by the Soil Survey Party during the season of 1942, was as follows:

Township 46, Range 3, West 5th M.	West of Railroad
Township 46, Range 4, West 5th M.	West of Railroad
Township 46, Range 5, West 5th M.	
Township 46, Range 6, West 5th M.	
Township 46, Range 7, West 5th M.	
Township 45, Range 3, West 5th M.	West of Railroad
Township 45, Range 4, West 5th M.	
Township 45, Range 5, West 5th M.	
Township 45, Range 6, West 5th M.	
Township 45, Range 7, West 5th M.	
Township 44, Range 3, West 5th M.	West of Railroad.
Township 44, Range 4, West 5th M.	
Township 44, Range 5, West 5th M.	
Township 43, Range 4, West 5th M.	
Township 43, Range 5, West 5th M.	
Township 42, Range 4, West 5th M.	
Township 42, Range 5, West 5th M.	
Township 41, Range 4, West 5th M.	
Township 41, Range 5, West 5th M.	

This survey was carried out with the object of preparing a soil classification map of the area and to determine the land suitable for settlement. The regulations governing the issue of agricultural leases were used as a basis for classification as to the suitability of the land for settlement purposes.

Lands suitable for immediate settlement include those quarter sections where the soil is suitable for continued crop production. Lands unsuitable for cultivation include those quarter sections having less than 50% of their area suitable for cultivation due to poor soil, very rough topography or very stony.

Lands unsuitable for settlement at present, but which may become suitable at some future time, are those quarter sections which at the present time have too much muskeg, too heavy clearing or are inaccessible to schools, towns and other facilities.

The survey was carried out on a quarter section basis, that is to say, each quarter section was inspected individually and soil samples taken at several different places on the quarter. The soil was classified in the field, and the profile or profiles noted in a field book.

In addition to the soil classification, the following information was also recorded:

(a) Topography.
(b) Extent and kind of tree covering.
*(c) Improvements and value, if any.
(d) The approximate cost of clearing and breaking the land.
(e) The area suitable for cultivation.
(f) The value of the land.

*Improvements were valued on Crown lands only.

A total of 2,414 quarter sections was covered in all by the soil survey party during the 1942 season. Of this number 940 were Crown lands, the remainder being patented lands or unpatented homesteads.

The area covered lies entirely within the grey wooded soil belt, the soil varying from first-class to third-class grey wooded. Approximately 15% of the area is muskeg and swamp land which is unsuitable for cultivation at the present time. Part of the muskeg land will be excellent farm land after it is dried out and the moss cover either decayed or burned off.

Approximately 14% of the Crown lands or 132 quarter sections were found to be unsuitable at the present time, due to the high cost of clearing. These lands could be brought under cultivation at a much lower cost and could be economically cultivated if power machinery were used.

Approximately 65% or 620 quarter sections were classified as unsuitable for cultivation, due to either poor soil or rough topography. Quarter sections with less than 50% of their area suitable for cultivation by reasons of unsuitable soil or rough topography are in this class. Generally speaking all third-class grey wooded soil was considered unsuitable at the present time. A total of 188 quarter sections, or 21%, was classified as suitable for immediate settlement.

Detailed reports on all Crown lands are on the general land file, and a copy is on file in the Technical Division. Accompanying the soil report are two maps; one showing the classification of Crown lands inspected, the other showing the major soil zones in this area.

The following is a summary of the work performed by the field inspection staff:—

Requests for inspections outstanding as at April 1st, 1942	760
Reports called for April 1st, 1942 to March 31st, 1943	863
Reports cancelled April 1st, 1942 to March 31st, 1943 (due to gasoline rationing and changes in regulation)	409
Reports received April 1st, 1942 to March 31st, 1943	763
Reports outstanding as at March 31st, 1943	451

This work was carried out by four full time inspectors and one part time inspector.

The following statement gives some idea of the transactions of this Division during the fiscal year:—

Homestead and soldier grant entries cancelled	873
Applications for patent received	1,281
Notifications for title issued	1,160
Applications for title on hand as at the 31st of March, 1943	1,937

Sales granted during the fiscal year		86
Sales cancelled		9
Active sales as at March 31st, 1943		250
Assignments registered		129
Agricultural Leases:		
Leases active as at March 31st, 1942—Area 50,175.96 acres		289
Leases issued during fiscal year—Area 29,981.72 acres		170
Leases cancelled during fiscal year—Area 9,567.86 acres		58
Leases in force as at the 31st of March, 1943—Area 70,589.82 acres		401
Accrued Area Leases:		
Leases active as at March 31st, 1942—Area 38,375.84 acres		452
Leases issued during the fiscal year—Area 5,716.69 acres		53
Leases cancelled during fiscal year—Area 2,795.92 acres		27
Leases in force as at 31st March, 1943—Area 41,296.61 acres		478
Licences of Occupation:		
Licences active as at 31st March, 1942		94
Licences issued during fiscal year		13
Licences cancelled during fiscal year		2
Licences in force as at March 31st, 1943		105
Townsite Leases:		
Leases active as at 31st March, 1942		15
Leases issued during fiscal year		.....
Leases cancelled during fiscal year		.....
Leases in force as at 31st March, 1943		15
Mineral Surface Leases:		
Leases active as at 31st March, 1942		18
Leases issued during fiscal year		1
Leases cancelled during fiscal year		3
Leases in force as at March 31st, 1943		16
Applications for right of entry		8
Fur Farm Leases:		
Leases active as at 31st March, 1942		9
Leases issued during fiscal year		2
Leases cancelled during fiscal year		2
Leases in force as at 31st March, 1943		9
6 and 10 year Cultivation and Grazing Leases:		
Leases active as at 31st March, 1942—Area 65,659.95 acres		368
Leases issued during the fiscal year—Area 1,976.89 acres		13
Leases cancelled during the fiscal year—Area 12,720.18 acres		79
Leases in force as at 31st March, 1943—Area 54,916.64 acres		302
Renewal Cultivation and Grazing Leases:		
Renewal leases active as at 31st March, 1942—Area 22,573.11 acres		129
Renewal leases issued during fiscal year—Area 2,709.71 acres		17
Renewal leases cancelled during fiscal year—Area 160 acres		1
Renewal leases in force as at 31st March, 1943—Area 25,122.82 acres		145
21 Year Cultivation and Grazing Leases:		
Leases active as at 31st March, 1942—Area 2,070.93 acres		7
Leases issued during fiscal year		.....
Leases cancelled during fiscal year		.....
Leases in force as at 31st March, 1943—Area 2,070.93 acres		7
Cultivation Leases in the south-eastern part of the Province:		
Leases active as at 31st March, 1942		.....
Leases issued during fiscal year—Area 7,448.96 acres		38
Leases cancelled during the fiscal year		.....
Leases in force as at 31st March, 1943—Area 7,448.96 acres		38
6 Year Cultivation and Grazing Leases (Special Areas):		
Leases active as at 31st March, 1942		.....
Leases issued during fiscal year—Area 54,050.91 acres		188
Leases cancelled during fiscal year—Area 796.09 acres		2
Leases in force as at 31st March, 1943—Area 53,254.82 acres		186
20 Year Cultivation and Grazing Leases (Special Areas):		
Leases active as at 31st March, 1942		.....
Leases issued during fiscal year—Area 14,101.73 acres		54
Leases cancelled during fiscal year		.....
Leases in force as at 31st March, 1943—Area 14,101.73 acres		54
Grazing permits issued		1,561
Cultivation permits issued		74
Hay permits issued—Tons of hay cut 7,014¾		1,187
Hay seizures—5 covering 53 tons.		
Grazing—Long Term Grazing Leases:		
Leases active as at 31st March, 1942—Area 2,358,387.85 acres		1,645
Leases issued during fiscal year—Area 315,750.92 acres		197
Leases cancelled during fiscal year—Area 151,497.74 acres		115
Leases reinstated during fiscal year		.....
Leases transferred during fiscal year—Area 8,000.00 acres		4
Area added to existing leases	2,084.25 acres	
Area withdrawn from existing leases	27,219.07 acres	

On the 31st of March, 1943, there were in existence 1,731 long term leases, comprising an area of 2,505,506.21 acres.

Under the new provincial grazing reserve regulations, 8 reserves were established, two in the Edmonton and six in the Calgary districts.

Two of the reserves mentioned are operated by the Department and contain approximately 66,000 acres. 135 farmers obtained permits on these reserves and pastured 2,740 head of stock. Two other reserves containing approximately 9,420 acres are operated by incorporated associations as caretakers. On these reserves 55 farmers grazed 1,136 head of stock. The other four reserves were granted to incorporated associations in the form of leases from the Department, comprising an area of approximately 37,150 acres, on which 47 resident farmers pastured 1,250 head of stock and 1,862 sheep.

Proceedings are underway for the formation of five other reserves. One of these covers an extensive area and is to be operated by the Department in the Vauxhall district.

The total revenue received for the fiscal year in connection with the administration of provincial lands amounted to $161,376.91, as compared with $145,981.43 in the previous year, showing an increase of $15,395.48. Details pertaining to this revenue are given in the report of the Accounting Division of this Department.

FILING DIVISION

	New Files made during fiscal year	Total Files March 31, 1943
General lands	3,282	96,169
Grazing lands	412	8,130
Timber lands	526	6,576
School lands	493	11,743
Mining lands	862	34,573
School lands, mining	6	3,164
Company files	20	945
Totals	5,601	161,300
Letters received during the fiscal year		142,665
Letters mailed during the fiscal year		207,055

A new system was introduced into the Filing Branch during the period under review, which covered a colour scheme for files, which has accelerated the sorting and searching for same.

A new file plot book system was also introduced which shows the rivers and lakes in each township, in addition to the file numbers, and is of great assistance in assigning and locating files for fractional areas.

Considerable additional work was involved in amalgamating Special Area files with those of Head Office.

School Lands

By Orders in Council Nos. 703/42 and 1174/42 the personnel of the Board to inquire into applications for compromise or adjustments in connection with outstanding school lands' sales, was amended by striking out the names of John William Patrick and David Nicol and substituting therefor the names of Edward Reginald Edwards, Acting Accountant, and Thomas Charles Rankine, Departmental Solicitor, respectively.

Seventeen Board meetings were held during the fiscal year and 205 cases were given consideration. By various Orders in Council passed during the year reductions were granted in 227 cases (22 cases carried over from the previous year) amounting to $340,540.29 principal, and $376,149.82 interest. This makes a grand total of 2,626 cases dealt with, resulting in total reductions of $3,086,138.16 on principal account and $2,622,274.09 on interest account.

There were two public auction sales of school lands. Seventeen new sales were made covering an area of 871.62 acres, at a total price of $8,770.04.

Cancelled sales totalled 97, 48 by Order in Council and 49 by deed of surrender. Reinstated sales numbered 200. Approximately 1,869 active school

lands' sales were transacted during the year and 36 assignments in connection with same were registered.

Total revenue received on school lands' sales amounted to $231,286.78—$145,341.71, on principal and $85,945.07 on interest—an increase of $4,539.68 over last year. This increase is accounted for by the large number of sales reinstated. The total revenue received on school lands for the fiscal year was $446,217.65.

The sum of $214,930.87 was collected from rentals and royalties, as compared with $269,184.03 in the previous year, a decrease of $54,253.16. This decrease is due in most part to the wheat quota, which was only 14 bushels per acre at the end of March.

6 and 10 Year Cultivation and Grazing Leases:	
Leases active as at March 31st, 1942—Area 323,253.05 acres	1,752
Leases issued during fiscal year—Area 27,072.20 acres	142
Leases cancelled during fiscal year—Area 52,880.91 acres	302
Leases in force as at March 31st, 1943—Area 297,444.34 acres	1,592
6 Year Cultivation and Grazing Leases (Special Areas):	
Leases active as at March 31st, 1942	.....
Leases issued during fiscal year—Area 10,347.13 acres	36
Leases cancelled during fiscal year	.....
Leases in force as at March 31st, 1943—Area 10,347.13 acres	36
Special Leases:	
Leases active as at March 31st, 1942	41
Leases issued during fiscal year	5
Leases cancelled during fiscal year	2
Leases in force as at March 31st, 1943	44
Licences of Occupation:	
Licences active as at March 31st, 1942	33
Licences issued during fiscal year	3
Licences cancelled during fiscal year	.....
Licences in force as at March 31st, 1943	36
Number of school lands assignments registered	88
Number of school lands grazing permits issued	2,123
Number of school lands cultivation permits issued	29
Number of school lands hay permits issued	253
Number of tons of hay cut	2,094¼

Number of hay seizures—1, consisting of 3 tons.

Forestry

REPORT OF THE DIRECTOR OF FORESTRY, T. F. BLEFGEN

The year under review shows a falling off in the demand for forest products required for the erection of barracks, military encampments, hangars, internment camps and other buildings required by the army and air force.

The demand of the armed forces of the United States, however, has been greater than the year previous in connection with their requirements for hangars, administration and other buildings in connection with the Alaska Highway and the oil development at Fort Norman known as the Canol Project.

There was also a great deal of material required for the building of prefabricated huts which was transported to different sites where they were erected. Being of a portable nature they are readily moved from one site to another as the work progresses.

The demand for lumber to be used for crating implements of war, and for use as containers for munitions, parts of planes, tanks and for food supplies, especially meats and butter, has shown an increase.

The native spruce (*picea glauca*) of this province lends itself very well for all crating purposes in that it is a soft grain wood and does not split easily. Furthermore it is light, has the required tensile strength and, for packing meats and butter, it is in great demand owing to the fact that the odour of the wood is less liable to be imparted to the food shipped.

This feature of Alberta's native spruce has gained particular prominence during the present war and, as a result, the Dominion Timber Controller has granted the different box factories manufacturing food containers for overseas shipment a special priority, even over the requirements of the armed forces for encampments.

Railway traffic continued to be heavy during the year with the result that tie requirements for the railways reached an all time high. A great deal of coal was also required by the railway companies. Added to this, the extremely cold winter of 1942-43 rendered it necessary to mine a greater amount of coal for heating purposes than is usually required. As a result of these record mining activities, the demand for mine timbers such as props, tramway ties, lagging, etc., showed an increase.

Demands for products of the forest exceeded the output for the second time since the resources were taken over and in the fall of 1942 there was very little dry lumber available either in mills or retail yards. Even the box factory stocks were extremely low, in spite of the priorities they had been given for their requirements.

The reason was directly attributable to the shortage of labour referred to in the 1942 report of this Division. This condition, however, was greatly accentuated by labour requirements on the Alaska Highway, the Canol Project and numerous airports that were being constructed in the North, which were rushed to completion by the United States Government on cost plus basis contracts, with the result that wages were entirely out of line with those usually paid in logging and mill operations for the same class of work and most of the lumber camps were depleted of their better trained and more skiful operators. A great percentage of young boys, old men and a few others, who were unable to secure work from contractors working on the cost plus basis, were consequently the only ones remaining in some of the lumber camps and mills.

Owing to the extreme shortage of labour brought about by these conditions, some of the operators were forced to request, and were ultimately successful in obtaining permission to utilize, the services of German prisoners of war and Japanese nationals. These helped to a minor degree to alleviate the situation.

There were, however, a great many Special Timber Permits and small berths acquired, where neighbours worked together, co-operating to overcome the labour shortage and assist in meeting the war requirements for lumber, and at the same time benefitting by the higher prices being paid for forest products. In this manner the decrease in the cut of lumber from that of 1941-42 was not as great as was at first anticipated.

The extremely important part the forests of this province are playing, not only in the war effort but in the important question of tempering climate and assisting in the control of water tables throughout the prairies, is becoming better recognized by everyone. It is hoped that the importance of forest growth to a well-balanced nation will receive the credit it deserves, and that this will be reflected in more substantial appropriations when the war is over and victory is won.

It is with deep regret that the untimely death by accident of two of the personnel of the Crowsnest-Bow River Forest has to be recorded. Assistant Forest Ranger Bruce B. Broderick met his death in losing his foothold while climbing a mountain in company with Professor Webb of the University of Alberta. Ranger Henry J. Wileman lost his life in an endeavour to stop a runaway team. His daughter was on a load of hay being hauled to ranger headquarters and he endeavoured to stop the team and in doing so was knocked down, the wheels of the waggon passing over his chest causing his death a short time afterwards.

Forest Protection

The fire hazard during the summer of 1942 was one of the most favourable to be experienced for a number of years. This was indeed fortunate as experienced labour was practically impossible to obtain. Those usually available had migrated to construction, war work and other highly paid projects, and a great number had enlisted, with the result that in some locations extra assistance was practically impossible to obtain. The promise of assistance, if required, was, however, offered by some of the Canadian army camps. Fortunately it was unnecessary to request this service, but the promised co-operation was much appreciated.

Very good co-operation was also received from the United States forces stationed in the Fort McMurray district. They gave the very best assistance possible with both men and mechanized equipment on several fires that occurred at a hazardous period which would otherwise have perhaps developed into large fires with heavy loss both in timber destroyed, coupled with time and expense in extinguishing.

A great number of aircraft flying in the northern part of the province was, perhaps, the cause of at least some of the fires fought in the outlying districts. Of nine fires that occurred in the Athabaska Valley, north and west of Whitecourt, seven were directly on the beam used between Edmonton and Fort St. John, British Columbia, and two of these were only a short distance on either side. Whilst being unable to definitely state that the fires referred to were caused by lighted cigars or cigarette butts being thrown from the planes, a thorough investigation into all other possible causes was made and the conclusion was therefore arrived at that these fires were caused in this manner. It is definitely known that a large percentage of lighted cigars or cigarette butts dropped from as high as 6,000 feet are capable of starting fires, and after the

usual causes such as lightning, camp fires, winter fire hangovers, etc., had been thoroughly investigated and eliminated it was concluded that flying personnel or passengers were the cause of at least seven of the nine fires referred to.

With reference to passengers on commercial planes, the question of throwing lighted material from airplanes is eliminated, as this matter has been taken up with the commercial companies flying to the north for years and found to be not the case. Warnings are placed in the planes and at stations, and receptacles are provided for smokers. The conclusion, therefore, is that the large number of army and airforce personnel travelling by plane on this route was responsible. The officers in charge of all flying operations have been requested, and have promised, to place warning signs, and to take all other necessary precautions to prevent forest fires being started from their planes. A further study of this cause of fire is being made and results will be closely watched.

Ranger Station House, Crowsnest-Bow River Forest

Fire Season.—During the winter of 1941-42 the weather was comparatively mild with less than an average snowfall throughout the forest areas of the province. In the Cypress Hills and Crowsnest-Bow River forests, as a matter of fact, the snowfall was so light that for the greater part of the winter sleighs were used with difficulty. The spring break-up was slightly earlier than usual, but there were several good snowfalls in the mountains and foothills in the early spring with the result that there was ample moisture in the forest areas.

The only spring fire hazard that was evident was in semi-open land and on hills with a southern exposure.

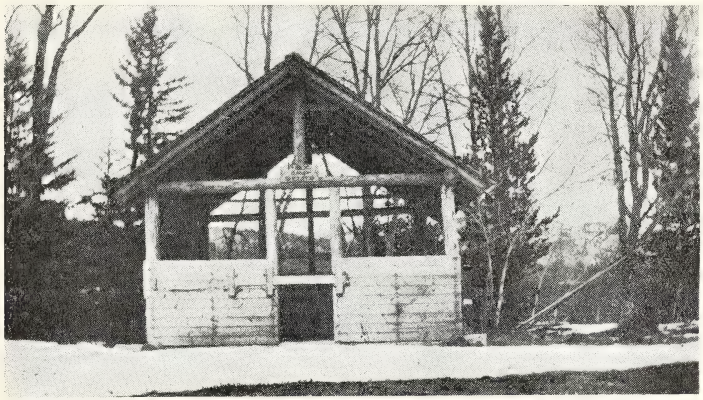
In the Westlock and Lac La Biche divisions of the Northern Alberta Forest District the season opened in April with a moderate hazard, owing to lack of precipitation. This was alleviated, however, by light falls of snow on the 6th and 7th of April and again on the 14th, and by a heavy rain on the 25th.

This precepitation was followed by warm weather and south-west winds and from the first week of May a hazard peak was reached which continued until May 25th when a general rain occurred. During this period a great deal of smoke was drifting from the north-west, reported to be coming from fires in Northern British Columbia and the Yukon Territory along the Alaska Highway and from a large fire in the vicinity of Anyox, British Columbia. This smoke, to a great extent, prevented the detection of fires by Alberta look-outs. Partly

as a result of this, and partly through the inexperience of one of the look-out men, the Two Hills fire burned for six days before being discovered and reported, allowing it to obtain a considerable size before suppression measures could be started. The loss of merchantable timber was not great, although a great deal of young coniferous growth was lost.

The summer season was very favourable to forest protection as ample rain fell during July and August. Although these rains were not general they occurred in practically all areas nearly every week, and in the southern part of the province the summer was one of the wettest that has been known for many years.

The early fall was quite wet with numerous showers and some snow in the mountain forests. The greatest hazard occurred in the Westlock division of the Northern Alberta Forest District, where fires appeared in most inaccessible places, presumably from cigarette butts or cigars dropped from airplanes.



Tourist and Fishermens' Shelter, Crowsnest-Bow River Forest

Fire Prevention.—The season under review was the most favourable for forest protection experienced for many years, a low hazard period existing in the forest areas with practically no lightning strikes in remote places. As a matter of record, all electrical storms were followed by rain and any lightning strikes were extinguished thereby.

A very favourable factor in the Northern Alberta Forest District was the ample moisture received during the fall of 1942, which came before freeze-up and not having a chance to run off was absorbed in the ground. This resulted in the soil containing sufficient moisture to prevent the usual winter camp fires from burning in the ground until conditions were favourable to spreading in the spring and summer.

Another helpful factor was the earlier assumption of duties by rangers who assisted greatly in checking incipient fires and in warning settlers before the early spring burning started.

A continuation of splendid co-operation from the press and different radio stations throughout the province was received, and I wish to take this opportunity of again thanking them and assuring them that such co-operation and assistance is greatly appreciated by the personnel of the Alberta Forest Service.

Junction of the Peace and des Rochers rivers

Ranger school group

Fire Detection.—Owing to the shortage of labour, the desired progress in providing adequate detection in the Northern Alberta Forest District is not being made. The study of suitable sites is continuing, however, with the object in view of having definite locations made so that proper coverage will be secured when these can be constructed.

Fire Suppression.—As previously stated, the season was one of the most favourable, from a suppression standpoint, that has been experienced for a number of years. Furthermore, our detection system was not hampered to the usual extent by smoke coming in from neighbouring provinces, with the exception of the short period previously referred to when a heavy smoke drifted from fires in British Columbia and Yukon Territory.

During the fire season of 1942, 215 fires were dealt with, 99 being in the large or "C" and "D" class, 66 in the "B" class and the remainder under ten acres in extent in the "A" class.

COMPARISON OF FIRE LOSSES BY PERCENTAGE

Causes	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942
Campers	23.7	52.8	38.9	35.4	42.3	38.3	35.9	27.4	28.8	26.0	20.9	31.5
Smokers	3.2	5.3	13.5	11.7	9.3	9.7	4.5	3.6	5.0	4.8	2.2	3.3
Settlers	21.9	17.1	17.4	17.9	8.2	11.7	20.7	14.6	14.8	12.2	22.7	13.9
Railways	6.6	4.5	2.8	5.0	10.3	4.0	9.3	4.2	4.6	6.7	7.6	11.1
Lightning	.6	2.6	5.2	7.5	1.0	14.1	2.2	2.3	4.0	2.8	1.6	.9
Industrial operations	1.9	1.1	1.7	4.2	1.0	3.2	.8	1.4	1.4	.6	1.4	3.6
Incendiary	15.1	8.2	11.8	11.2	22.7	10.1	13.5	14.6	9.8	8.9	10.8	6.9
Public Works	1.4	.5	1.4	1.3	1.0	.4	.3	.8	.6	....	.2	.5
Unclassified	1.5	1.6	....	2.5	2.1	2.0	7.2	9.0	13.4	16.9	8.8	10.2
Unknown	24.1	6.3	7.3	3.3	2.1	6.5	5.6	22.1	17.6	21.1	23.8	18.1

RAILWAY FIRE LOSSES, CALENDAR YEAR, 1942

This statement deals only with fires burning on forested territory under the supervision of the Alberta Forest Service, and which started within 300 feet of the centre line of the railway right of way.

Causes and number of fires:

Railway causes—Locomotives	20	
Employees	1	
Sub-total		21
Other causes—Campers and travellers	1	
Settlers	5	
Unknown	12	
Unclassified	9	
Sub-total		27
TOTAL		48

Number of acres burned:

Slashing or old burn	2
Timber land	....
Young growth	1
Not forested	780
TOTAL	783

Loss:

Timber	....
Young growth	$ 1.50
Forest products	....
Other property	2.00
TOTAL	$ 3.50

ANNUAL STATEMENT OF FIRES BY CAUSES, MONTHLY DISTRIBUTION, ETC., WITHIN AND OUTSIDE FOREST RESERVES, ALBERTA—CALENDAR YEAR, 1942

Cause	Number					P.C.	Damage	Area, Acres	Monthly Distribution												Fires Inside Provincial Forests		Fires Outside Provincial Forests	
	A	B	C	D	Tot.				January	February	March	April	May	June	July	August	September	October	November	December	No.	Area, Acres	No.	Area, Acres
Camp-fires	13	19	19	16	67	31.5	$ 69,793.63	94,197	....	....	....	9	26	....	8	9	6	9	....	....	2	15	65	94,182
Smokers	2	3	2	....	7	3.3	210.00	55	....	....	....	....	2	....	1	3	1	....	....	....	1	....	6	55
Settlers	5	11	10	4	30	13.9	29,772.00	21,114	....	....	2	9	13	2	....	2	....	2	....	....	....	....	30	21,114
Railways	12	9	2	1	24	11.1	55,412.75	28,877¼	....	....	....	1	5	9	....	2	....	6	1	....	....	....	24	28,877¼
Lightning	1	....	1	....	2	.9	18.75	200	....	....	....	....	....	....	1	1	....	....	....	....	1	....	1	200
Industrial operations	3	4	1	....	8	3.6	.....	18¾	....	....	2	2	2	....	....	1	1	....	....	....	....	....	8	18¾
Incendiary	1	2	5	7	15	6.9	3,824.75	36,197	....	1	....	2	1	1	....	6	....	4	....	....	....	....	15	36,197
Public works	....	1	....	....	1	.5	143,762.50	1½	....	....	....	....	....	1	....	....	....	....	....	....	....	....	1	1½
Unclassified	2	8	6	6	22	10.2	143,762.50	85,773	....	....	....	4	3	4	....	5	4	2	....	....	....	....	22	85,773
Unknown	11	9	8	11	39	18.1	54,139.50	59,382¼	....	....	1	7	17	3	....	5	1	5	....	....	2	3¾	37	59,378½
TOTALS	50	66	54	45	215	100.0	$ 356,933.88	325,815¾	....	1	5	34	69	20	10	34	13	28	1	....	6	18¾	209	325,797
Per cent.	23.2	30.7	20.9	25.2		100.0			....	.5	2.3	15.8	32.1	9.3	4.6	15.8	6.0	13.1	.5		.3		.97	

ANNUAL SUMMARY OF FOREST FIRE LOSSES, ALBERTA—CALENDAR YEAR, 1942

FIRE CAUSES	NUMBER OF FIRES — CLASS A	B	C	D	Total	LANDS AFFECTED — Ownership: Public, Acres	Private, Acres	AREA: Total, Acres	CONDITION: Merchantable Timber, Acres	Cut-over Timber, Acres	Young Growth, Acres	Not Forested, Acres
FIRES WITHIN FOREST RESERVES												
Campers	1	....	1	....	2	15	....	15	....	....	3	12
Smokers	1	....	....	....	1	....	....	....	....	....	....	....
Settlers	....	....	....	....	....	....	....	....	....	....	....	....
Railways	....	....	....	....	....	....	....	....	....	....	....	....
Lightning	1	....	....	....	1	....	....	....	....	....	....	....
Incendiary	....	....	....	....	....	....	....	....	....	....	....	....
Industrial operations	....	....	....	....	....	....	....	....	....	....	....	....
Unclassified	....	....	....	....	....	....	....	....	....	....	....	....
Unknown	....	2	....	....	2	2¾	1	3¾	....	....	....	3¾
TOTALS	3	2	1	....	6	17¾	1	18¾	....	....	3	15¾
FIRES OUTSIDE FOREST RESERVES												
Campers	12	19	18	16	65	93,780¾	401¼	94,182	26,630	150	12,997¼	54,404¾
Smokers	1	3	2	....	6	55	....	55	6	....	48	1
Settlers	5	11	10	4	30	20,321	793	21,114	9,790	180	5,875	5,269
Railways	12	9	2	1	24	28,865	12¼	28,877¼	....	....	18,850½	10,026¾
Lightning	....	....	1	....	1	200	....	200	....	....	15	185
Incendiary	1	2	5	7	15	34,632	1,565	36,197	512	....	355	35,330
Industrial operations	3	4	1	....	8	18¾	....	18¾	....	17¼	....	1½
Unclassified	2	8	6	6	22	83,163	2,610	85,773	15,939½	1	24,895	44,937½
Unknown	11	7	8	11	37	41,774½	17,604	59,378½	10,850	640	15,853	32,035½
Public Works	....	1	....	....	1	¾	¾	1½	....	....	....	1½
TOTALS	47	64	53	45	209	302,810¾	22,986¼	325,797	63,727½	988¼	78,888¾	182,192½
FIRES WITHIN AND WITHOUT FOREST RESERVES												
Campers	13	19	19	16	67	93,795¾	401¼	94,197	26,630	150	13,000¼	54,416¾
Smokers	2	3	2	....	7	55	....	55	6	....	48	1
Settlers	5	11	10	4	30	20,321	793	21,114	9,790	180	5,875	5,269
Railways	12	9	2	1	24	28,865	12¼	28,877¼	....	....	18,850½	10,026¾
Lightning	1	....	1	....	2	200	....	200	....	....	15	185
Incendiary	1	2	5	7	15	34,632	1,565	36,197	512	....	355	35,330
Industrial operations	3	4	1	....	8	18¾	....	18¾	....	17¼	....	1½
Unclassified	2	8	6	6	22	83,163	2,610	85,773	15,939½	1	24,895	44,937½
Unknown	11	9	8	11	39	41,777¼	17,605	59,382¼	10,850	640	15,853	32,039¼
Public Works	....	1	....	....	1	¾	¾	1½	....	....	....	1½
TOTALS	50	66	54	45	215	302,828½	22,987¼	325,815¾	63,727½	988¼	78,891¾	182,208¼
SUMMARY BY DIVISIONS												
N.A.F.D.*	44	61	53	45	203	302,807½	22,986¼	325,793¾	63,725½	988¼	78,888¼	182,191¾
Clearwater	2	1	1	....	4	17	....	17	2	....	3	12
Crowsnest-Bow	1	....	....	....	1	....	....	....	....	....	....	....
Brazeau-Athabaska	3	4	....	....	7	4	1	5	....	....	½	4½
Cypress Hills	....	....	....	....	....	....	....	....	....	....	....	....
TOTALS	50	66	54	45	215	302,828½	22,987¼	325,815¾	63,727½	988¼	78,891¾	182,208¼

FIRE CAUSES	LOSS — TIMBER (MERCHANTABLE AND CUT-OVER) — SALVABLE: Saw-timber, M.ft.B.M.	Other, Cords	Depreciation	UNSALVABLE: Saw-timber, M.ft.B.M.	Other, Cords	Loss	Loss of Timber	Loss of Young Growth	Loss of Other Property	Total Loss	SUPPRESSION COSTS: Ranger Service	Other Expenditures	Total	Burning Permits Issued
FIRES WITHIN FOREST RESERVES														
Campers	....	....	....	....	....	....	....	$ 9.75	....	$ 9.75	$ 58.29	$ 59.34	$ 117.63	....
Smokers	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Settlers	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Railways	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Lightning	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Incendiary	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Industrial operations	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Unclassified	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Unknown	....	....	....	....	....	....	....	....	....	....	1.80	....	1.80	....
TOTALS	....	....	....	....	....	....	....	$ 9.75	....	$ 9.75	$ 60.09	$ 59.34	$ 119.43	....
FIRES OUTSIDE FOREST RESERVES														
Campers	3,770	600	....	26,064	65,392	$ 53,036.63	$ 53,036.63	$16,747.25	....	$ 69,783.88	$ 840.73	$ 9,444.82	$ 10,285.55	....
Smokers	....	60	....	....	....	45.00	45.00	165.00	....	210.00	93.94	1,045.55	1,139.49	....
Settlers	6,180	....	$9,220.00	10	43,215	13,171.00	22,391.00	7,381.00	....	29,772.00	313.77	1,178.06	1,491.83	....
Railways	....	....	....	....	....	....	....	55,412.75	....	55,412.75	43.51	423.23	466.74	....
Lightning	....	....	18.75	....	....	....	18.75	....	....	18.75	41.25	124.65	165.90	....
Incendiary	....	150	....	1,500	470	2,993.50	2,993.50	831.25	....	3,824.75	362.14	1,333.50	1,695.64	....
Industrial operations	....	....	....	....	....	....	....	....	....	....	33.28	....	33.28	....
Unclassified	....	....	....	9,505	118,116	56,978.75	56,978.75	86,283.75	$ 500.00	143,762.50	979.55	16,789.94	17,769.49	....
Unknown	....	....	....	1,167	20,740	7,014.50	7,014.50	44,715.00	2,410.00	54,139.50	416.24	6,420.47	6,836.71	....
Public Works	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Miscellaneous Expenditure										....	....	542.11	542.11	....
TOTALS	9,950	810	$9,238.75	38,246	247,933	$133,239.38	$142,478.13	$211,536.00	$2,910.00	$ 356,924.13	$ 3,124.41	$ 37,302.33	$ 40,426.74	....
FIRES WITHIN AND WITHOUT FOREST RESERVES														
Campers	3,770	600	....	26,064	65,392	$ 53,036.63	$ 53,036.63	$ 16,757.00	....	$ 69,793.63	$ 899.02	$ 9,504.16	$ 10,403.18	....
Smokers	....	60	....	....	....	45.00	45.00	165.00	....	210.00	93.94	1,045.55	1,139.49	....
Settlers	6,180	....	$9,220.00	10	43,215	13,171.00	22,391.00	7,381.00	....	29,772.00	313.77	1,178.06	1,491.83	....
Railways	....	....	....	....	....	....	....	55,412.75	....	55,412.75	43.51	423.23	466.74	....
Lightning	....	....	18.75	....	....	....	18.75	....	....	18.75	41.25	124.65	165.90	....
Incendiary	....	150	....	1,500	470	2,993.50	2,993.50	831.25	....	3,824.75	362.14	1,333.50	1,695.64	....
Industrial operations	....	....	....	....	....	....	....	....	....	....	33.28	....	33.28	....
Unclassified	....	....	....	9,505	118,116	56,978.75	56,978.75	86,283.75	$ 500.00	143,762.50	979.55	16,789.94	17,769.49	....
Unknown	....	....	....	1,167	20,740	7,014.50	7,014.50	44,715.00	2,410.00	54,139.50	418.04	6,420.47	6,838.51	....
Public Works	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Miscellaneous Expenditure										....	....	542.11	542.11	....
TOTALS	9,950	810	$9,238.75	38,246	247,933	$133,239.38	$142,478.13	$211,545.75	$2,910.00	$ 356,933.88	$ 3,184.50	$ 37,361.67	$ 40,546.17	....
SUMMARY BY DIVISIONS														
N.A.F.D.*	9,950	810	$9,238.75	38,246	247,913	$133,229.63	$142,468.38	$211,534.50	$2,910.00	$ 356,912.88	$ 3,100.46	$ 36,703.67	$ 39,804.13	....
Clearwater	....	....	....	....	20	9.75	9.75	9.75	....	19.50	69.01	109.04	178.05	....
Crowsnest-Bow	....	....	....	....	....	....	....	....	....	....	6.31	6.85	13.16	....
Brazeau-Athabaska	....	....	....	....	....	....	....	1.50	....	1.50	8.72	....	8.72	....
Cypress Hills	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Miscellaneous Expenditure										....	....	542.11	542.11	....
TOTALS	9,950	810	$9,238.75	38,246	247,933	$133,239.38	$142,478.13	$211,545.75	$2,910.00	$ 356,933.88	$ 3,184.50	$ 37,361.67	$ 40,546.17	....

*N.A.F.D.—Northern Alberta Forest District

SUMMARY SHOWING TOTAL NUMBER OF FIRES AND BURNT OVER AREA FROM 1931 TO 1942, INCLUSIVE

Year	Total No. of Fires	Total Acreage	Not Forested	Net Acreage
1931	622	604,876.12	209,064.75	395,811.37
1932	379	136,117.89	68,253.42	67,864.47
1933	288	93,765	30,955.88	62,809.12
1934	240	58,870	21,656.5	37,213.5
1935	97	6,319.75	3,267.75	3,052
1936	248	204,454	46,534	157,920
1937	375	835,259	155,069.5	680,189.5
1938	521	1,758,345.5	842,384	915,961.5
1939	499	429,139.25	159,774.5	269,364.75
1940	313	474,244.25	108,597.5	365,646.75
1941	445	1,355,424.5	459,475	895,949.5
1942	215	325,815.75	182,208.25	143,607.50
	4,242	6,282,631.01	2,287,241.05	3,995,389.96

Radio

In advance of the fire season of 1942 all radio equipment had been checked and repaired in readiness for the fire season. Owing to favourable conditions, however, all of the equipment was not put into operation as early as in previous years, the last set being placed in operation on May 3rd.

During the spring and summer under review high power transmitters were installed at Calgary and at Rocky Mountain House improving the service to the southern part of the province, and in the north a high power transmitter was installed at Lac La Biche headquarters. These transmitters have three crystal controlled channels and may be operated either on code by key or by voice.

Medium power units were installed at Peace River headquarters and at the Saskatoon Mountain look-out west of Grande Prairie. These medium-power units operate from either battery supply or alternating current. Additional portable equipment was purchased and distributed, bringing the total of this class of equipment to 66 sets in use throughout the province.

Additional work and strain was placed on communication facilities when advice was received that operating frequency in the northern zone would have to be changed to avoid confliction and interference with the frequency being used by the United States Army Signal Corps on the Alaska Highway.

By staggering the work so as to continue operation, 45 sets were changed without seriously impairing communication facilities.

All look-out and headquarters stations stood by from 8 to 12 hours each day, depending upon the existing fire hazard. By means of this service the rangers' operating portable sets and the timber inspectors' operating mobile sets are able to contact the look-out or headquarters station in their zone frequency with a minimum of delay.

Due to the preference the armed forces have over all other services in the matter of obtaining priorities, the same difficulty mentioned last year was encountered in securing necessary replacements and new equipment for radios.

The difficulty of obtaining trained personnel is a problem which also continues to be encountered in radio communication.

Forest Administration

Provincial Forest Reserves.—Timber disposal from the forest reserves continued to be heavy. Shortage of labour and lack of snow, however, proved to be quite an impediment. The issuance of permits for miscellaneous uses continued with practically the same volume as that of previous years.

The many demands for mine timber of all classes were carried on from the preceding year, with the result that the few remaining areas of dry timber,

which only a few years ago were considered to be too far distant from the mines, are now in great demand. At the present rate of coal consumption, and the timber requirements resulting therefrom, it is estimated that available supplies of dry timber in the Crowsnest area of the Crowsnest-Bow River Forest will be depleted within four or five years.

TIMBER CUT UNDER PERMIT, ALBERTA FOREST RESERVES, FISCAL YEAR, 1942-43

	Cypress Hills	Crowsnest-Bow River	Clearwater	Brazeau-Athabaska	Totals
Number of permits	211	233	31	42	517
Fuelwood, cords	407	1,069	1,263	52	2,791
Mine timber, lineal feet	.....	456,350	95,000	221,534	772,884
Lagging, lineal feet	.....	151,700	.....	.....	151,700
Fence posts	17,195	5,391	181	.....	22,767
Saw logs (F.B.M.)	2,943	4,651,280	20,000	16,000	4,690,223
Round timber, pieces	.....	.....	237	200	437
Round timber, lineal feet	.....	.....	2,320	.....	2,320
Fence rails, pieces	19,138	7,866	.....	.....	27,004
Railway ties	.....	.....	.....	1,380	1,380
Tramway ties, number	.....	.....	.....	500	500
Building logs, lineal feet	99	8,831	.....	.....	8,930
Piling, lineal feet	.....	728	.....	.....	728
Roof poles	.....	50	.....	.....	50

TIMBER OPERATIONS ON FOREST RESERVES TIMBER SALES—FISCAL YEAR, 1942-43

	Crowsnest-Bow River	Clearwater	Brazeau-Athabaska	Totals
Number of active operations	25	6	20	51
Lumber, feet board measure	8,550,082	2,020,697½	7,972,264	18,543,043½
Railway ties	.....	29,423	102,865	132,288
Piling, lineal feet	80	.....	.....	80
Mine timber, lineal feet	869,868	680,304	809,683	2,359,855
Lagging, lineal feet	301,084	10,175	1,988	313,247
Building logs and culvert timber	.....	.....	656	656
Fence posts	2,056	.....	.....	2,056
Fuelwood, cords	172	.....	.....	172
Mine ties, number	.....	.....	1,880	1,880
Tramway ties, number	.....	.....	7,048	7,048
Poles	777	.....	.....	777
Fence rails	8,933	.....	.....	8,933
Shingle bolts, cords	6	.....	.....	6
Slabs, cords	50	.....	150	200

Sentinel Ranger Station, Crowsnest-Bow River Forest

Nordegg Ranger Station, Clearwater Forest

Provincial Lands.—The demand for products of the forest continued at a very heavy rate and, had sufficient labour been available, the all time high peak for production last year would have been surpassed. With the double handicap of a labour shortage, however, coupled with the inefficiency of a great number of those available, the cut of timber was approximately 16% less than that taken out during the previous year.

The number of railway ties manufactured, however, was greater than for any previous year, a total of 1,797,703 being cleared to the railways, compared with the previous high mark of 1,321,685 reached in 1940-41.

In passing it might be mentioned that previous to the fall of 1942 the different railway companies would not accept spruce ties owing to their relatively short life under operating conditions, as compared with pine and other species, but the shortage of labour and difficulty in securing their requirements of pine ties necessitated a change in policy, and both the Canadian National Railways and the Northern Alberta Railways Company contracted for and accepted a certain percentage of ties manufactured from spruce timber. The Canadian National Railways plan to creosote the spruce ties they have secured before being placed in the track, and if they stand up to their requirements they will accept greater percentages of this species in future contracts.

Although the lumber output was down from the 1941 figure, there were a great many more Berths and Special Timber Permits granted to cut timber. This added activity considerably increased the volume of work for both the field and office staffs.

These smaller operators prevented, to a great extent, the expected decrease in volume as estimated by some of the larger operators, who had based their figures on their own operations and had estimated a reduction of from 40% to 60% from the amount taken out the previous year.

STATEMENT OF TIMBER OPERATIONS FOR 1942-43 ON PROVINCIAL LANDS IN THE EDMONTON DISTRICT AND IN THE CALGARY AND PEACE RIVER LAND AGENCIES

	Head Office Edmonton District	Calgary Agency	Peace River Agency	Totals
(a) OPERATIONS ON LICENCE TIMBER BERTHS:				
Number of active operations	54	9	.....	63
Lumber, feet, board measure	89,578,479	7,347,772	.....	96,926,251
Railway ties	159,913	.....	.....	159,913
Mine timber, lineal feet	.....	3,214,481	.....	3,214,481
Slabs, cords	.....	202	.....	202
Lath	3,308,100	.....	.....	3,308,100
Building logs, lineal feet	7,732	.....	.....	7,732
Fence posts	.....	1,400	.....	1,400
Fuelwood, cords	.....	106	.....	106
Lagging	.....	244,427	.....	244,427
Snow fence lath	307,920	.....	.....	307,920
(b) OPERATIONS ON TIMBER PERMIT BERTHS:				
Number of active operations	215	32	.....	247
Lumber, feet, board measure	63,634,064	10,588,728	.....	74,222,792
Railway ties	697,339	69,469	.....	766,808
Piling, lineal feet	.....	3,020	.....	3,020
Mine timber, lineal feet	.....	212	.....	212
Lath	457,700	599,050	.....	1,056,750
Lagging, lineal feet	2,200	174,100	.....	176,300
Telegraph and telephone poles, lineal feet	4,624	.....	.....	4,624
Building logs and culvert timber, lineal feet	34,672	.....	.....	34,672
Fuelwood, cords	.....	212	.....	212
Fence posts	119	.....	.....	119
Slabs, cords	15	.....	.....	15
(c) OPERATIONS UNDER SPECIAL TIMBER PERMITS: (Sec. 68 of the Timber Regulations)				
Number of active operations	376	66	.....	442
Lumber, feet, board measure	17,141,232	2,034,568	.....	19,175,800
Railway ties	415,577	56,553	.....	472,130
Piling, lineal feet	22,500	.....	.....	22,500
Mine timber, lineal feet	27,200	.....	.....	27,200
Telegraph and telephone poles, lineal feet	10,931	.....	.....	10,931
Building logs and culvert timber, lineal feet	4,586	.....	.....	4,586
Fence posts	9,390	1,800	.....	11,190
Fuelwood, cords	1,159½	.....	.....	1,159½
Shingles	313,500	.....	.....	313,500
Lath	74,428	900,900	.....	975,328
Birch veneer, lbs.	4,349,928	.....	.....	4,349,928
Slabs, cords	1,200	.....	.....	1,200
Shingle bolts, cords	23½	.....	.....	23½

*(d) PROVINCIAL LANDS TIMBER PERMITS ISSUED AUTHORIZING THE CUTTING OF MATERIAL SHOWN HEREUNDER:

Number of permits issued	953	158	611	1,722
Building logs, lineal feet	29,082	13,433	117,684	160,199
Mine timber, lineal feet	520,765	1,432,000	.....	1,952,765
Telephone poles	14,320	68	.....	14,388
Piling, lineal feet	11,740	58	34,880	46,678
Lumber, feet, board measure	3,213,529	99,632	2,829,161	6,142,322
Fence posts	46,963	18,700	34,825	100,488
Droppers (fence)	.....	5,500	.....	5,500
Roof poles	8,800	400	28,880	38,080
Fence rails	44,570	4,250	138,440	187,260
Fuelwood, cords	8,017	2,048	2,987	13,052
Railway ties	5,051	.....	10,325	15,376
Shingles	124,000	25,000	151,000	300,000
Shingle bolts, cords	49	.....	136	185
Radio poles, number	4	.....	.....	4
Slabs, cords	.....	35	.....	35
Mine ties, lineal feet	.....	16,000	.....	16,000

*The figures shown under this heading are the amounts authorized to be cut. The amounts actually cut under this heading are not available.

STATEMENT OF TIMBER OPERATIONS FOR 1942-43 ON SCHOOL LANDS IN THE EDMONTON DISTRICT AND IN THE CALGARY AND PEACE RIVER LAND AGENCIES

	Head Office Edmonton District	Calgary Agency	Peace River Agency	Totals
(a) OPERATIONS ON TIMBER PERMIT BERTHS:				
Number of active operations	14	4	.....	18
Lumber, feet board measure	4,669,429	1,813,762	.....	6,483,191
Railway ties	38,188	.....	.....	38,188
Lath	208,750	.....	.....	208,750
Slabs, cords	269	.....	.....	269
(b) OPERATIONS UNDER SPECIAL TIMBER PERMITS: (Section 25(g) of the Timber Regulations)				
Number of active operations	25	12	.....	37
Lumber, feet board measure	1,395,608	572,829	.....	1,968,437
Railway ties	211,420	.....	.....	211,420
*(c) SCHOOL LANDS TIMBER PERMITS ISSUED AUTHORIZING THE CUTTING OF MATERIAL SHOWN HEREUNDER:				
Number of permits issued	299	31	37	367
Building logs, lineal feet	1,500	100	4,160	5,760
Mine timber, lineal feet	68,050	130,000	.....	198,050
Piling, lineal feet	.....	800	.....	800
Lumber, feet board measure	313,366	48,000	190,000	551,366
Fence posts	5,150	640	2,000	7,790
Fence rails	1,383	850	120	2,353
Fuelwood, cords	2,193	201	73	2,467
Shingles	.....	.....	5,000	5,000
Shingle bolts, cords	15¾	.....	.....	15¾
Railway ties	200	.....	.....	200

*The figures shown under this heading are the amounts authorized to be cut. The amounts actually cut under this heading are not available.

SUMMARY OF TIMBER OPERATIONS ON PROVINCIAL AND SCHOOL LANDS, 1942-43

	PROVINCIAL LANDS				SCHOOL LANDS			FOREST RESERVES		
	Licence Timber Berths	Permit Timber Berths	Special Section 68	Other Permits	Permit Timber Berths	Special Section 25 (g)	Other Permits	Timber Sales	Timber Permits	Totals
Number of active operations	63	247	442	1,722	18	37	367	51	517	3,464
Lumber, feet, board measure	96,926,251	74,222,792	19,175,800	6,142,322	6,483,191	1,968,437	551,366	18,543,043½	4,690,223	228,703,425½
Railway ties	159,913	766,808	472,130	15,376	38,188	211,420	200	132,288	1,380	1,797,703
Piling, lineal feet	.....	3,020	22,500	46,678	.....	.....	800	80	728	73,806
Mine timber, lineal feet	3,458,908	176,512	27,200	1,952,765	.....	.....	198,050	2,673,102	924,584	9,411,121
Telegraph and telephone poles, lineal feet	.....	4,624	10,931	14,388	.....	.....	.....	.....	.....	29,943
Building logs and culvert timber, lineal feet	7,732	34,672	4,586	160,199	.....	.....	5,760	656	8,930	222,535
Fence rails	.....	.....	.....	187,260	.....	.....	2,353	8,933	27,004	225,550
Fence posts	1,400	119	11,190	100,488	.....	.....	7,790	2,056	22,767	145,810
Fence droppers	.....	.....	.....	5,500	.....	.....	.....	.....	.....	5,500
Roof poles	.....	.....	.....	38,080	.....	.....	.....	777	50	38,907
Fuelwood, cords	106	212	1,159½	13,052	.....	.....	2,467	172	2,791	19,959½
Slabs, cords	202	15	1,200	35	269	.....	.....	200	.....	1,921
Mine ties, lineal feet	.....	.....	.....	16,000	.....	.....	.....	1,880	.....	17,880
Shingles	.....	.....	313,500	300,000	.....	.....	5,000	.....	.....	618,500
Shingle bolts, cords	.....	.....	23½	185	.....	.....	15¾	6	.....	230¼
Lath	3,308,100	1,056,750	975,328	.....	208,750	.....	.....	.....	.....	5,548,928
Lath, snow fence	307,920	.....	.....	.....	.....	.....	.....	.....	.....	307,920
Tramway ties	.....	.....	.....	.....	.....	.....	.....	7,048	500	7,548
Round timber, pieces	.....	.....	.....	.....	.....	.....	.....	.....	582	582
Birch veneer, lbs.	.....	.....	4,349,928	.....	.....	.....	.....	.....	.....	4,349,928
Radio poles, number	.....	.....	.....	4	.....	.....	.....	.....	.....	4
Number of inspection reports submitted by timber inspectors	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,601
Number of timber seizures made	.....	.....	.....	.....	.....	.....	.....	.....	.....	158

Grazing

Owing to the lack of normal precipitation in the form of snow during the previous winter the growth of grass was slow during the early spring. This condition, however, was alleviated after the rains became general in May. The ample rains during the late summer and fall kept the range green to the end of the grazing season.

Most stock entered the grazing divisions in good shape. There were a few herds, however, that were quite thin on the southern part of the Crowsnest-Bow River Forest when they entered the summer grazing areas. All stock was reported to have left the ranges in the fall of the year in remarkably good condition.

Most ranges came through the season in excellent shape. There were two cases, however, where over-grazing was reported. These were on the South Drywood Sheep Range and on the northerly part of the south end, cattle and horse division. This condition certainly cannot be justified, especially during a season such as that under review, where the forage was ample and the ranges not over-stocked. The cause, however, is the usual one in such cases, that is improper distribution and poor handling of stock.

In an endeavour to prevent a recurrence of these conditions, the matter was taken up with the various stock associations at their annual meetings with the promise of closer supervision of their ranges being secured. This will have to be checked closely to see that these promises are carried out.

The market for cattle continued to be good. As a matter of fact, an increase in price over that obtained the previous season was reported by most stockmen. The market for horses was considered fair with a slight falling off in some cases as compared with previous years.

GRAZING STATEMENT—ALBERTA FOREST SERVICE, 1942-43

Forest	No. of Permits	No. of Horses	No. of Cattle	No. of Sheep
Cypress Hills	62	592	2,526	.....
Crowsnest-Bow River	292	1,857	19,992	4,716
Clearwater	47	756	227	.....
Brazeau-Athabaska	106	526	112	6
TOTALS	507	3,731	22,857	4,722

COMPARATIVE STATEMENT, GRAZING—ALBERTA FOREST SERVICE

Grazing year	1931	1932	1933	1934	1935	1936	1937
Number of permits	456	606	493	517	533	497	529
Number of cattle	15,041	20,086	20,230	22,557	25,097	23,407	18,921
Number of horses	3,417	3,377	3,185	2,541	2,207	2,441	3,418
Number of sheep	4,379	7,465	6,705	3,078	4,114	5,443	3,174

	1938	1939	1940	1941	1942	Totals	Average
Number of permits	437	482	435	479	507	5,971	497.5
Number of cattle	22,280	22,386	23,831	22,451	22,857	259,144	21,595.4
Number of horses	3,024	2,731	3,194	3,332	3,731	36,598	3,049.8
Number of sheep	4,791	6,883	3,954	4,745	4,722	59,453	4,954.4

Improvements

As a result of the exceptionally favourable fire season, the different staffs were able to devote a maximum of time on improvement projects. This, however, was principally devoted to maintenance work.

In addition to the maintenance of roads, trails, bridges, telephone lines and buildings, several new projects were started. Some were completed, while on others considerable progress was made. The principal construction carried out was the completion of the look-out tower on Saskatoon Mountain in the Grande Prairie Division of the Northern Alberta Forest District. This tower was put into operation as a radio equipped station in July and was found to assist materially in fire detection.

A new forestry station and cache were built in Grande Prairie. These buildings are a decided improvement on those previously in use.

In the Peace River Division in the Northern Alberta Forest District a tower was erected on what is known as Pack Saddle Mountain. The erection of this tower is quite satisfactory, but does not give the coverage desired. It takes in part of the country and will be of some use, but cannot be considered a location that would warrant a permanent radio equipped tower.

On the Crowsnest Forest Reserve no new construction work was undertaken during the season under review, but on the Bow River Forest work was carried out on nine new construction projects, seven of which were completed, while on the other three considerable work was done but the projects were not complete at the end of the season.

The principal construction work was done on the Aura Ranger Station house. This work was started last year when logs were cut and hauled for the construction of the building and this year the basement was dug, a cement foundation put in, log walls erected and the roof sheeted and partly shingled. The project, however, was not completed.

On the Clearwater forest work was done on four cabins, but, owing to the great amount of maintenance work on other projects, these were not completed.

On the Brazeau Forest three new buildings were completed, they being the Leyland and Yellowhead caches and woodshed at the Mountain Park Ranger Station.

On the Athabaska Forest work was started on several cabins, but, owing to the identical conditions referred to in the Clearwater Forest, these were not completed.

IMPROVEMENT STATEMENT

NEW CONSTRUCTION PROJECTS:

Forest	Houses	Garages, Sheds, etc.	Fences	Fields (breaking in acres)	Water Supply Systems	Barns and Stables	Telephones (miles)	Corrals	Bridges	Grounds	Trails (Miles)	Cabins	Fireguard Roads (Miles)	Tourist Stoves	Radio Portables	Miscellaneous
Cypress Hills	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Crowsnest	....	3	....	....	1	....	....	....	....	2	2	1	....	....	4	1
Bow River	1	1	....	....	....	....	....	1	....	2	2	1	....	....	3	1
Clearwater	....	6	1	....	....	....	4	3	....	....	9	3	....	....	....	6
Brazeau	....	....	....	....	....	1	....	....	....	....	....	1	....	....	....	3
Athabaska	....	3	2	....	....	....	....	....	1	....	....	2	....	....	....	....
TOTALS	1	13	3	....	1	1	4	4	1	4	13	8	....	....	7	11

MAINTENANCE PROJECTS:

Forest	Houses	Cabins	Barns and Stables	Telephones (Miles)	Trails (Miles)	Roads (Miles)	Fences	Corrals	Water Supply Systems	Garages, Sheds, etc.	Look-out Towers and Cabins	Grounds	Hay Meadows & Pastures	Ferries	Bridges	Miscellaneous
Cypress Hills	1	1	1	12.5	....	56	1	1	1	1	....	1	....	....	....	2
Crowsnest	9	1	5	161	272	145	15	3	2	10	....	9	4	....	1	2
Bow River	5	10	8	241.5	550	100.5	18	6	6	14	....	14	5	....	....	2
Clearwater	4	14	3	201.5	700.5	59	13	....	....	4	1	5	2	1	....	2
Brazeau	4	7	2	194.5	284.5	9.5	8	1	....	8	....	1	....	....	....	1
Athabaska	2	9	....	76.0	401.5	85.5	6	1	2	4	2	1	....	....	....	3
TOTALS	25	42	19	887.0	2208.5	455.5	61	12	11	41	3	31	11	1	1	12

IMPROVEMENTS—STATEMENT OF MAN-DAYS WORKED

NEW CONSTRUCTION PROJECTS:

Forest	Houses	Garages, Sheds, etc.	Fences	Look-out Towers	Water Supply System	Barns and Stables	Telephones	Corrals	Bridges	Grounds	Trails	Cabins	Tourist Stoves	Fireguard Roads	Radio Portables	Miscellaneous
Cypress Hills	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Crowsnest	....	12½	....	....	4½	....	....	....	....	4	3	½	....	....	10	....
Bow River	123½	33½	....	....	....	....	....	3½	....	14½	8	36	....	....	18	12
Clearwater	....	36½	2½	....	....	....	90	23	....	....	31	47	....	....	....	65½
Brazeau	....	....	....	....	....	....	....	....	....	....	....	45	....	....	....	53
Athabaska	....	80½	14	....	....	221½	....	....	179½	....	....	109½	....	....	....	....
TOTALS	123½	163	16½	....	4½	221½	90	26½	179½	18½	42	238	....	....	28	130½

MAINTENANCE PROJECTS:

Forest	Houses	Cabins	Barns and Stables	Telephones	Trails	Roads	Fences	Corrals	Water Supply Systems	Garages, Sheds, Etc.	Look-out Towers and Cabins	Grounds	Hay Meadows & Pastures	Ferries	Bridges	Miscellaneous
Cypress Hills	31½	7½	21½	28	....	23½	2½	13½	2	3	....	8	....	....	....	31½
Crowsnest	91½	2½	24	208½	84	358	200	5½	3	23½	....	114½	5½	....	143	8
Bow River	33	38	41	292	332½	368½	344	56	38½	30½	....	126	13	....	....	8
Clearwater	7	14½	12	285½	432	90	176	....	....	2	....	19½	1	11	....	3½
Brazeau	79½	29	24½	158½	198	4	29½	1½	....	25½	....	1	....	....	....	2
Athabaska	31½	18½	....	35½	128½	163½	59	1	4	13	12	5	....	....	....	37
TOTALS	274	110	123	1,008	1,175	1,007½	811	77½	47½	97½	12	274	19½	11	143	90

Publicity

The press and different radio stations throughout the province have given splendid co-operation by inserting news items and making announcements over the air regarding fire hazards. A great deal of favourable comment was heard on the programmes sponsored by the Dominion Forest Service and transmitted over the Canadian Broadcasting Corporation network. Although the radio reaches a great many, it is, in the opinion of a number of the field men, a form of publicity which should be augmented, and that better results could be obtained by the distribution of pamphlets, literature and movie trailers depicting the devastation that occurs when a camp fire is not extinguished.

Nursery and Tree Distribution

Progress continues to be made in tree nursery work at the Oliver Mental Institute and at the Fort Saskatchewan gaol. It is, however, regrettable that the same success is not being met with at the Lethbridge gaol nursery. The principal reason for lack of saisfactory results at this location is that it is in a dry area where irrigation is necessary, and it has been found that the continual use of water has a tendency to bring alkali to the surface, which is very detrimental to tree growth. A further study is being made in an endeavour to overcome this unfavourable condition. If no remedy is found, however, it will perhaps become necessary to abandon the location and select a more suitable site.

Tree Distribution.—The following species and quantities were given out from Oliver in the spring of 1943:—

Transplants:		
White Spruce (*Picea glauca*)	34,802	
Lodgepole Pine (*Pinus murrayana*)	8,865	
Red Pine (*Pinus resinosa*)	6,135	
Green Ash (*Fraxinus pennsylvanica*)	12,215	
Bur Oak (*Quercus macrocarpa*)	13,802	
Douglas Fir (*Pseudotsuga mucronata*)	10,783	
Siberian Larch (*Larix sibirica*)	2,510	
White Oak (*Quercus alba*)	1,770	
Red Oak (*Quercus rubra*)	2,065	
American Elm (*Ulmus americana*)	995	
Colorado Blue Spruce (*Picea pungens*)	212	
		94,154
Cuttings:		
Laurel Leaf Willow (*Salix pentandra*)	15,855	
Golden Willow (*Salix vitellina*)	14,135	
North-west Poplar (*Populus*)	8,690	
		38,680
Seedlings:		
Colorado Blue Spruce (*Picea pungens*)	200	
		200
Ornamental Species:		
Flowering Almond (*Prunus triloba*)	2	
Ginnalian Maple (*Acer ginnala*)	4	
Honeysuckle (*Lonicera ciliosa*)	52	
Red Elderberry	15	
Regosa Rose Bushes	20	
Weeping Birch	46	
Mountain Ash (*Pyrus americana*)	6	
Plum (*Prunus nigra*)	8	
Hawthorne (*Crataegus*)	2	
Horse Chestnut (*Hippocastanum*)	2	
Spirea	15	
Basswood (*Tilia americana*)	2	
Syringa	28	
		202
		133,236

MILEAGE TRAVELLED BY EMPLOYEES OF THE ALBERTA FOREST SERVICE

FISCAL YEAR 1942-43

Divisions	Foot	Saddle	Driving	Speeder	Auto	Canoe	Rowboat	Motorboat	Plane	Railway	Other	Totals
Northern Alberta Forest District	28,267¾	44,140½	28,338	13,538	142,897¾	463	364	6,930½	1,881	10,248	3,036	280,104½
Crowsnest-Bow River Forest	3,163	26,333	2,757	.....	52,559	.....	.....	85	.....	532	.....	85,429
Clearwater Forest	7,184	13,317	2,497	895	28,817	.....	.....	.....	.....	1,013	64	53,787
Brazeau-Athabaska Forest	7,953	16,000	1,878	4,703	19,524	21	.....	.....	.....	4,274	.....	54,353
Cypress Hills Forest	218	718	189	.....	5,853	.....	.....	.....	.....	.....	.....	6,978
Radio Division	167	737	170	.....	10,120	.....	.....	.....	1,500	8,384	190	21,268
TOTALS	46,952¾	101,245½	35,829	19,136	259,770¾	484	364	7,015½	3,381	24,451	3,290	501,919½

Fisheries and Game Administration

REPORT OF THE FISH AND GAME COMMISSIONER, E. S. HUESTIS

Fisheries Branch

During the fiscal year under review conditions showed an improvement in commercial fishing, reflecting gains both to fishermen, exporters and the companies operating. Total production of commercial fish amounted to 6,158,883 pounds, an increase of 238,784 pounds over the previous year. A steady demand on the export and home markets was maintained throughout the year, resulting in a gain of $170,831.34 in the value of fish marketed.

Sport fishing was handicapped during the greater part of the season due to unseasonable wet weather, high water, cloudy streams and muddy roads. Excellent angling was had in some sections of the foothills, but conditions generally could only be considered as fair. In order to afford sportsmen an added opportunity to exercise their skill, the angling season on the Bow River and Athabaska River watersheds was extended to October 31, 1942, and fine weather and good water during the 16 days' extension in some measure compensated for the earlier uncertain weather and road conditions.

Coarse fish angling in lake waters showed an increase both in the numbers of anglers as well as in the amount of fish taken. This was due partly to all-weather roads within easy reach of many good lakes and the tendency of the public to spend summer vacations nearer at home in consequence of war-time gasoline restrictions.

An innovation, in the form of an angling permit good for three consecutive days, was introduced for the purpose of attracting anglers with only limited leisure time who, otherwise, would not be encouraged to purchase a season's permit.

The condition of the fisheries throughout the province both commercially and from the sporting point of view was satisfactory.

Mr. James Cross of the Calgary Brewing and Malting Company, in an endeavour to assist in the propagation of fish throughout Alberta, constructed in 1941 on his Company's property one of the most up-to-date hatcheries on the North American Continent. This hatchery, in its initial stage, had a capacity of approximately two million fish per year. The water used for its operation comes from a large well within the brewery building, the product of which is absolutely pure. This water represents the sole source of supply for the brewery's operations, the surplus becoming available for hatchery work.

In addition to this contribution to the public life of the province, Mr. Cross and his Company have added a number of very beautiful fish ponds on their grounds in which a variety of fish of various sizes and species are kept. These ponds are surrounded by a profusion of exotic flowers, shrubs and trees, and are reached by crossing a beautiful lawn where the paths laid down are paved with the prehistoric rock, which for countless millions of years have preserved the dinosaur remains along the Red Deer River in Alberta. Most of the ponds are constructed from the same type of rock. This display gives to the general public, whose privilege it is to visit the grounds, an opportunity to become

familiar with the various species of game fish which are being reared by the Department.

In 1943, Mr. Cross felt that with the addition of rearing ponds throughout the province, the hatchery could be extended in size. A new room was therefore constructed and a complete installation of troughs set up, which has completely doubled capacity, giving the province the use of the largest single game fish hatchery in the Dominion of Canada, with a present annual capacity of four million fish.

Eggs are brought to the fry stage, and from there the fish are distributed to rearing ponds throughout the province, where in turn they are kept to almost limit size and distributed in Alberta's streams and rivers for the general benefit of anglers in the province.

Fish Culture.—This important part of the Division's work was carried out very effectively by the various officers directly responsible. The season's operations of the whitefish hatchery at Lesser Slave Lake were satisfactory and a total of 72,850,000 whitefish eggs were distributed in the following waters:—

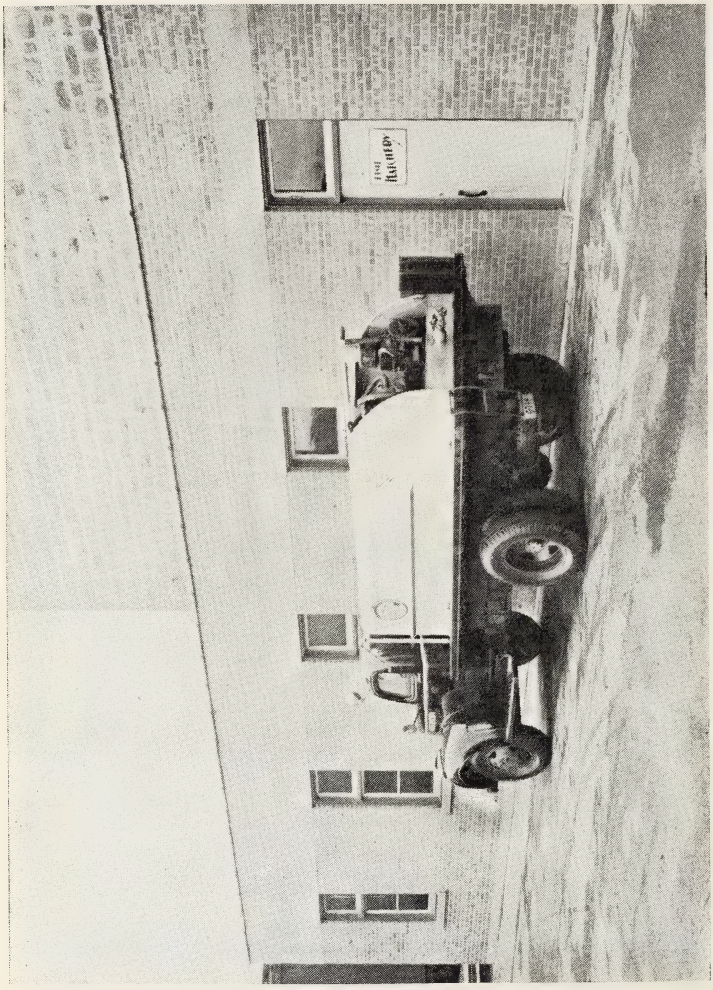
	Eyed Eggs	Fertilized Eggs
Beaver Lake	2,000,000	.....
Buck Lake (Tp. 46-6-5)	4,000,000	.....
Buck Lake (Tp. 65-17-4)	2,000,000	.....
Battle Lake	4,000,000	.....
Cold Lake	5,000,000	.....
Calling Lake	4,000,000	.....
Christina Lake	2,000,000	.....
Elinor Lake	1,000,000	.....
Heart Lake	2,000,000	.....
Lac La Biche	4,000,000	.....
Lac Ste. Anne	4,000,000	.....
Lac La Nonne	4,000,000	.....
Lesser Slave Lake	.....	6,000,000
Muriel Lake	1,000,000	.....
Mosquito Lake	2,000,000	.....
Pinehurst Lake	2,000,000	.....
Pigeon Lake	4,000,000	.....
Touchwood Lake	2,000,000	.....
Wabamun Lake	5,850,000	.....
Winnifred Lake	4,000,000	.....
Whitefish River	.....	8,000,000
	58,850,000	14,000,000

Total distribution of eyed and fertilized whitefish eggs—72,850,000

The game fish hatchery at Calgary was operated to capacity and distributions of trout from this point were carried out with small transportation losses. A number of Fish and Game Associations undertook the construction of rearing ponds and their aid and co-operation in this valuable work has been greatly appreciated. The Cardston Rod and Gun Club sponsored an experimental pond on Lees Creek and also took interest in raising fingerlings in a beaver dam site on Tough Creek. The Lethbridge Fish and Game Association organized work-parties and made two small test ponds on a spring site near Metaskoe to ascertain the possibilities of the area for further expansion.

At Pincher Creek the Rod and Gun Club erected a wooden enclosed pond fed by a small bank spring. Plans are being made by the members of this enthusiastic club to extend their project in the near future. The Claresholm Fish and Game Association, which constructed its first rearing pond several years ago, was fortunate enough to construct a new pond on the ranch of Mr. T. Riddle, whose interest made this project possible.

The Northern Alberta Fish and Game Association sponsored a rearing pond adjacent to Kilini Creek, near Heatherdown Post Office, which pond is also fed by spring water, and is in a district where trout are not native, but where it is hoped they may be successfully introduced.



Fish distribution truck

Photo by H. Pollard, Calgary

A new construction was started at what is known as the Raven pond site, near Crammond, at which place plans are being made for future development. Work on this project was seriously handicapped by frequent heavy rains and by difficulty in obtaining labour and materials when needed. Owing to these facts it was impossible to complete the structure before winter and at present the ponds are of a temporary nature only.

With the assistance of Forestry officers, three large rearing ponds were completed on a spring site at Bickerdike, near Edson. During the winter damage to these ponds was evident, due to frost cracks in the dirt embankments, and some loss of fish is to be expected. The extent of the damage and loss will not, however, be known definitely until the spring.

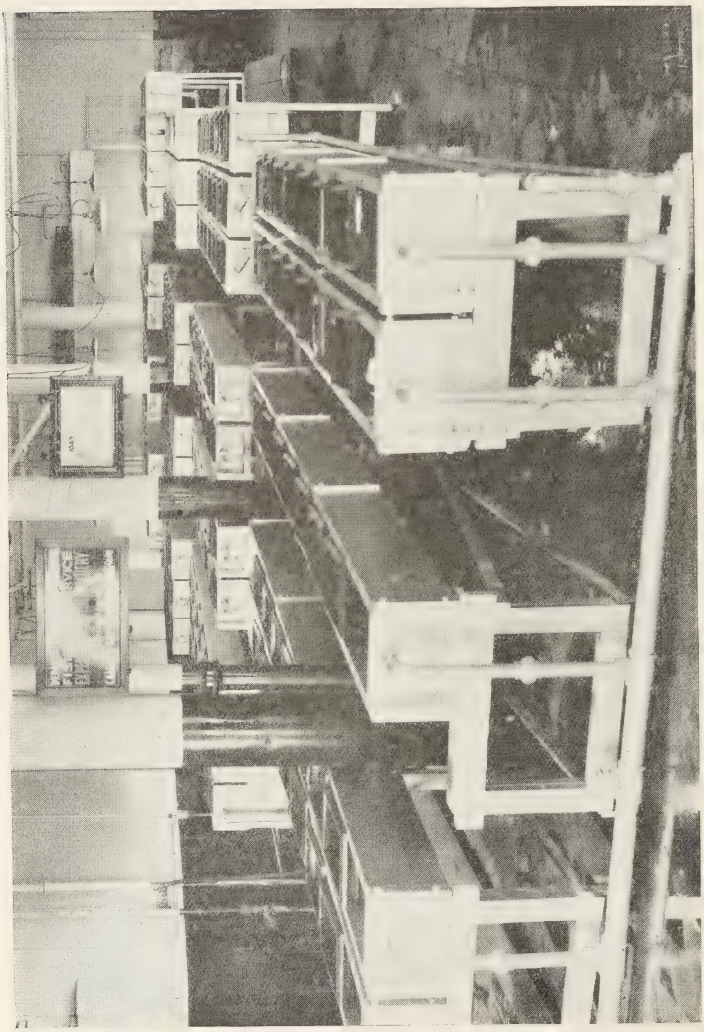
Inglewood rearing ponds had previously sustained a loss of approximately fifty per cent in trout fingerlings through an undisclosed source of pollution. No recurrence of this trouble has manifested itself since August 15, 1942, when mortality among the fingerlings was first observed.

All rearing ponds were stocked with trout fingerlings, and distributions of trout during the year were as follows:—

	Fingerlings	Yearlings
Rainbow Trout:		
Cardston Rod and Gun Club:		
Olsen pond (Lees Creek)	12,500	.....
Tough Creek dams	12,500	.....
Lethbridge Fish and Game Association:		
Metaskoe ponds	25,000	.....
Pincher Creek Rod and Gun Club:		
Pincher Creek pond	40,000	.....
Claresholm Fish and Game Association:		
Riddle Ranch pond	45,000	.....
Inglewood rearing ponds	110,000	.....
Bickerdike rearing ponds	114,700	.....
Raven rearing ponds	109,000	.....
Calgary Brewery ponds	20,000	.....
Mami Lake	35,000	.....
Lees Creek	.....	6,200
Beauvois Lake	.....	250
Pine Creek pond	2,000	.....
Yarrow Creek pond	4,000	.....
Yarrow beaver dams	4,000	.....
Lagoons-Bow River	52,000	.....
Fish Creek-Maclean pond	.....	400
	585,700	6,850
Lock Leven and Speckled Trout:		
Northern Alberta Fish and Game Association:		
Kilini Creek pond	28,000	.....
Raven rearing ponds	193,000	.....
Inglewood rearing ponds	80,000	.....
Calgary Brewery ponds	23,000	.....
	324,000	.....
Cutthroat Trout:		
Inglewood rearing ponds	74,800	.....

DISTRIBUTION OF ADULT PERCH

Sylvan Lake	66,800
Gull Lake	43,500
Chain Lakes	20,000
Jackfish Lake	23,000
Dried Meat Lake	25,000
Hastings Lake	14,500
Oster Lake	20,000
Lac La Nonne	30,000
	242,800



Fish Hatchery at Calgary

Photo by H. Pollard, Calgary

DISTRIBUTION OF FORAGE FISH (*Notropis Hudsonius*)

Sylvan Lake	85,000

SUMMARY OF DISTRIBUTIONS

Eyed whitefish eggs	58,850,000
Fertilized whitefish eggs	14,000,000
Rainbow trout, fingerlings	585,000
Lock Leven and Speckled fingerlings	324,000
Rainbow trout, yearlings	6,850
Cutthroat trout, fingerlings	74,800
Perch	242,800
Forage minnows	85,000
TOTAL	74,168,450

Angling.—The worst flood conditions since 1932 occurred on the Highwood River during the year. The first flood in May caused heavy damage and flooded large areas of cultivated land, especially south-west of High River. Loss of fish was considerable and rescue work most difficult, it being impossible to get at those stranded on plowed land, owing to water, mud and silt.

The greatest loss was caused by the breaking of the levee on the river bank five miles west of High River, which allowed a large flow of water to gush down into the Little Bow River. Since this gap could not be closed for upwards of five weeks the fish going through the gap were lost. The bridge across Pekisko Creek on the road west of the Bar U Ranch went out during the first flood and was not replaced. Those enthusiastic anglers who gained the upper part of Pekisko Creek on boggy trails were amply repaid with good fishing for their efforts. The headgates of the Bar U irrigation ditch were washed away, but, fortunately, the ditch was shut off at the spillway and only a small total of fish was lost.

The Findlay and McDougal irrigation system on the Highwood was put out of commission, the course of the river was changed and the intake was left high and dry. The flume leading to the headgates of the "T" irrigation ditch on Sullivan Creek was also broken down through flood waters but on account of the headgates being closed there was no loss of fish. The Squaw Coulee irrigation ditch on the Highwood escaped damage by flood waters through prompt action in closing the headgates.

Conditions on Sheep River were similar to those on the Highwood except that there was no overflow on surrounding land, but continued high water made angling poor for the greater part of the season.

Some unavoidable pollution occurred on Sheep River during the floods; the country is hilly and many of the oil wells and drilling rigs are situated in the valleys and on side-hills having natural drainage into the river. All the oil wells have adequate sumps well banked up to take care of oil, drilling fluid and mud under normal conditions, but heavy rainfalls in some instances caused the sumps to overflow.

The run of Rocky Mountain whitefish in the Highwood drainage system which was a month to five weeks later this year, was estimated to be only one-sixth of previous years. Trout fishing was good during clear water periods. The absence of small trout was very noticeable, nearly all fish taken being of good size. All tributary streams of the Highwood had ample water during the winter months and conditions appear excellent for the fish wintering well.

Fewer anglers visited the Willow Creek district than in several previous seasons. This was accounted for by high water, prevailing wet weather and the fact that the bridges on Willow Creek west of Stavely were carried out by flood waters. Angling was quite good after the streams cleared and the North Fork of Willow Creek produced some fine specimens up to three pounds. After the weather improved very satisfactory angling conditions were reported from the

Feeding time at fish ponds, Calgary Hatchery

Photo by H. Pollard, Calgary

South Fork, Trout and Lyndon Creeks, while other waters in the district were fair. Pike appear to be less numerous in this drainage than last year and bull trout (Dolly Vardon) are also on the decline except in the North Fork of Willow Creek.

Angling was good in some sections of the Pincher Creek district, especially the main streams of Pincher, Beaver Mines, Todd and Beaver creeks. Mill and Gladstone Creeks were only fair and Connelly, Screwdriver and Camp Creeks were poor on account of dirty water throughout most of the season. The Crowsnest River gave splendid angling when the water subsided and the same may be said of the Old Man River and its tributaries. Towards the end of the season catches of exceptionally fine trout were taken from the Castle and Carbondale Rivers, but previous to this angling was poor.

In the Waterton River section angling was very good in the main stream of the river, but the smaller streams were anything but satisfactory to the angler. Extensive damage was done to the excellent beaver dams on the main part of Pine Creek through flood water, and it is feared these will be a total loss for some years to come. Rocky Mountain whitefish reappeared in the small streams during the spawning season, the first time in any quantity for several years. Conditions in the district look well for wintering fish, there being an ample flow of water and a larger volume than during the previous winter.

The Bow and Elbow Rivers had an increased number of anglers during the season and, while angling was practically nil in wet weather, as soon as the streams cleared some very good catches of trout were reported.

The Raven and Clearwater sector had excellent fishing at the commencement of the season but tapered off to poor with the onset of frequent rains. Loch Leven were reported as plentiful, but dull skies and only occasional clear water made for light creels.

The watersheds of the McLeod and Athabaska rivers saw a decreased number of anglers this year; the best sport was towards the end of the season, and also for a short time at the commencement, when fine weather afforded the sportsmen an opportunity for fair catches of trout and Rocky Mountain whitefish.

Licences and Permits.—An increase is shown in the number of licences issued to commercial fishermen, being 183 more in number than the previous year, with domestic licences also showing an increase of 51. Angling permits suffered a reduction in the number sold of 646, but the class of licence most seriously affected by present restrictions on the sale of gasoline was the motor-boat licence, three only being issued during the year.

	1941-42	1942-43
Angling permits (Seasonal)	6,510	5,537
Angling permits (limited)	.....	327
Domestic licences	266	317
Fishermen licences	1,437	1,571
Commercial licences	128	77
Motor-boat licences	12	3
	8,353	7,832

Commercial Fishing.—Production for the period covered by this report amounts to a total of 6,158,883 pounds of fish of all species. The value to fishermen shows an increase of $87,783.22 and the value as marketed $170,831.54 over totals reported for the fiscal year ending March 31, 1942. Prices as a whole improved throughout the year, being a reflection of the rising trend on the New York and Chicago markets.

The following table gives the quantities and values of the different species of fish taken commercially during the fiscal year:—

	Pounds	Landed Value	Marketed Value
Whitefish	1,916,496	$209,136.78	$428,497.21
Trout (Lake)	18,556	3,380.45	5,937.92
Pike	504,674	13,311.06	48,853.09
Pickerel	254,337	13,478.17	35,192.60
Perch	75,816	5,101.52	10,892.60
Tullibee	3,324,864	41,133.97	77,265.60
Mixed fish	64,140	641.65	1,330.30
	6,158,883	$286,183.60	$607,969.32

It is interesting to note the development of commercial fishing in the province since a decade ago and the comparative higher values as well as increased production since the fiscal year of 1932-33. Notwithstanding the present wartime restrictions and man-power shortage, the commercial fisheries have shown a marked rise in production.

Fiscal Year	Pounds	Landed Value
1942-43	6,158,883	$286,183.60
1932-33	2,655,214	94,439.65
Increase	3,503,669	$191,743.95

Observance of the Regulations.—Prosecutions during the fiscal year under review numbered 33, a decrease of 45, and the number of confiscations amounted to 31, or a decrease of 28 from the previous year. The decrease in the number of prosecutions is partly accounted for by a new policy of educating the public to the necessity for observance of the regulations, rather than a rigid enforcement, resulting in a large number of convictions for small and often inadvertent transgressions. Lakes in which net fishing was permitted were the scenes of the major number of confiscations, anglers contributing only 25% of the total number.

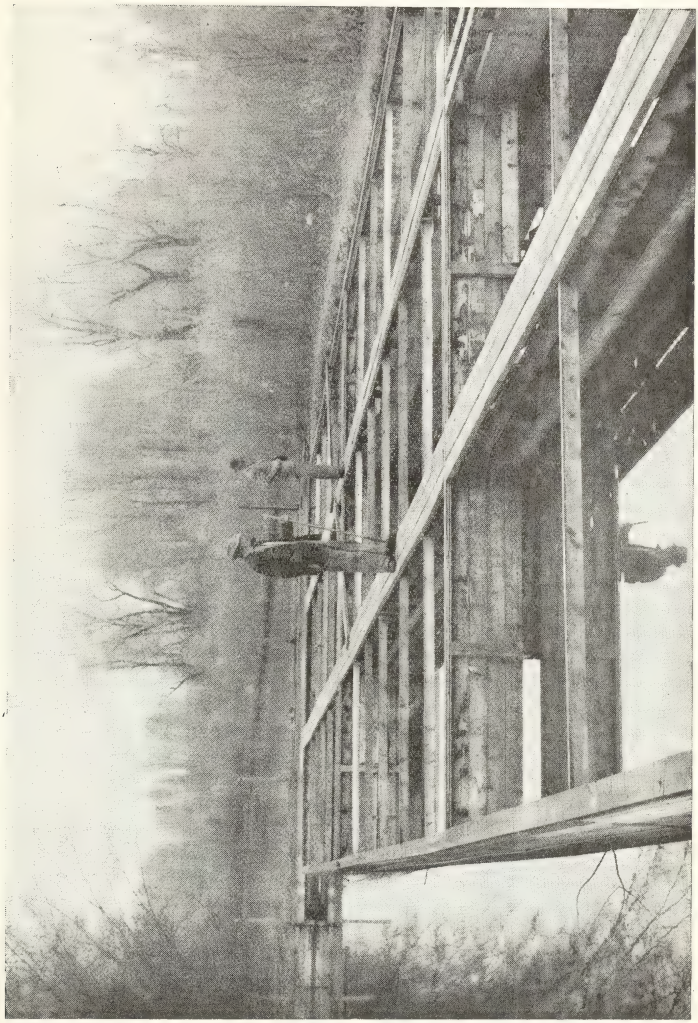
Excellent assistance was given by the Forestry personnel and the Royal Canadian Mounted Police, and the Fisheries officers with their assistance were able to maintain a close supervision of fishing activities throughout the province.

Last year a reference was made in the Fisheries Branch section of the Annual Report to the fact that a biological survey at Lesser Slave Lake was undertaken by Doctor R. B. Miller of the University of Alberta. This survey was continued during the year under review and, not only was the work on Lesser Slave Lake carried on, but numerous lakes and streams throughout the province were examined by Doctor Miller.

A system of study was worked out through the co-operation of the University of Alberta and members of the Fisheries Branch were trained to carry on the biological survey and to assist in this work. The result of such training allowed for a very great increase in the biological study of streams and lakes throughout the province.

The principal study by Doctor Miller on Lesser Slave Lake has been an investigation of the infestation of commercial whitefish. This infestation by the pike tapeworm (Triaenophorus Crassus), which is found in the meat of whitefish and tullibee has caused considerable concern to the exporters of whitefish to the United States and to other provinces of the Dominion. It has also caused considerable concern to the Pure Foods Administration in the United States to the extent that infested whitefish are being refused entry to that country.

It is possible through the studies carried on by Dr. Miller to trace the life history of this tapeworm. A continued study of the problem, with the possible eradication of one of the hosts of this parasite, may bring a solution to this very serious problem. A study is to be carried on next year, and if necessary the following year, so that every avenue of investigation will be explored and every means of extirpation studied.



Rearing Ponds, Inglewood Sanctuary, Calgary

Photo by H. Pollard, Calgary

GAME BRANCH

The year 1942-43 was one of continued progress for the Game Branch. During the previous year the Branch had been transferred from the Department of Agriculture to the Department of Lands and Mines where it was possible to secure the assistance of the Forest Division of the Department to help in the supervision and administration of game activities. This policy was continued and enlarged, taking more and more of the Forestry staff into the administration of the Game Branch on a co-operative basis, until the entire ranger staff of the Forestry division assumed the responsibilities of game officials, in addition to their other duties.

Co-operation continued with the Alberta Fish and Game Association, the fur farmers, the fur dealers and all others interested in the conservation and administration of game throughout the province. The whole-hearted co-operation and support of the members of the Department of Zoology at the University of Alberta, who had so ably assisted us during the past year, continued in giving this service. To all those persons and associations who gave this valuable help, and who offered advice from time to time, an expression of gratitude is made. It is only by the help given and interest shown by many persons that game in this province can continue to be developed for the benefit of all citizens, and for those, vitally interested in this natural resource, who come from points outside the provincial boundaries.

The policy of setting up registered trap-lines in that part of the province lying north of the North Saskatchewan River, and a continuation of the same policy in the forest reserves, was put into force and extended, the number of registered trap-line certificates issued during this year being two and a half times the number issued in the previous year. The growth of registered trap-lines is not yet over and expansion is going on continually.

It was found during the year that the inroads made by wolves and other predators on big game and fur had increased to a large extent. It was also found that during the war it was difficult for many trappers to secure all the traps that they required to carry on their business. It was therefore decided, as a temporary policy only, that special snaring permits should be issued to responsible holders of registered trapping certificates throughout the northern part of the province to reduce the ravages of wolves and other predators and to assist the trapper in his fur catch. Each trapper was carefully examined and had to be recommended by a game guardian before he could receive a snaring permit and each person receiving such a permit had his operations carefully supervised to see that no abuse was made of such privilege.

This being the second year of the registered trap-line throughout the northern part of the province, it was felt that by the end of this year such registered trap-lines would be well enough organized to allow for the discontinuance of the general $2.00 trapping licence which allowed for the trapping of animals on any area of the province. Each person, therefore, securing a general $2.00 trapping licence was advised by letter that such general licences would be discontinued during the following year, and that if they wished to remain in the trapping business they should register their trap-line and get security of tenure. This brought a steady increase in registrations.

It was found necessary in this year to tighten up considerably on the issuance of special beaver and muskrat permits. Numerous complaints coming to the Game Branch office told of damage being done to irrigation works, water conservation dams and of the flooding of pasture land, the loss of stock and breaking of implements through the work of the muskrat and beaver in certain localities. Permits had been issued in the past to such applicants, but it was found that in

many cases the same applicant appeared each year and it was found necessary that each one should be carefully examined by a game guardian or by a constable of the Royal Canadian Mounted Police, to see that actual damage was being done before a permit was issued. Under an inspection system of this kind many applications were refused where it was found that the applicant was obtaining the permit for the sake of profit and not because of any damage which occurred upon his land.

From the experience gained during previous years of administration of the Game Branch in this Department, it was realized that the payment of wolf and cougar bounty would have to continue. Early in the year it was learned that the Province of Saskatchewan and the Northwest Territories had discontinued the payment of wolf bounty, and it was immediately found that wolves were being brought into the Province of Alberta from these two areas for the collection of bounty. An attempt was then made to get concerted action from the four

Alberta's greatest conservationist

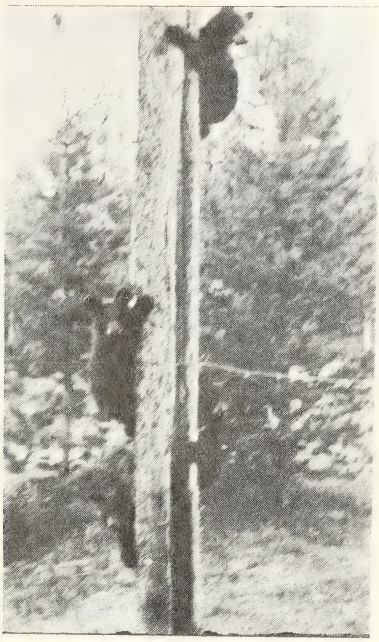
Photo by Alfred Blyth, Edmonton

"Is there anything in this for me?"
Photo by F. H. Riggall, Twin Butte, Alberta

western provinces and the Northwest Territories to pay the same wolf bounty in each of these Divisions under the same set of regulations.

Negotiations were carried on for some time but without success and finally this province was compelled to confine the payment of wolf bounty to the western side of the province, adjacent to the Province of British Columbia, where wolf bounty was being paid. At the same time it became necessary to reduce the bounty on cougar due to the fact that this particular bounty was being reduced in British Columbia. It was, however, possible to raise the bounty on wolf pups from $5.00 to $10.00 which added some incentive to the taking of these animals when they were young.

Other predators, those that prey on migratory and upland birds, also came under further study during the year, and it was found that the experience of the Game Branch in conducting crow and magpie competitions had led to considerable difficulties. It was, therefore, decided, for one year at least, to discontinue such competitions, and to study the possibility of a poison campaign being carried out against magpies and to distribute information in regard to crow traps to all parts of the province. A study was made of all crow traps which had been used in other provinces and the one which had been the most successful was picked. Blueprints of this trap were made, instructions printed and these were forwarded to many associations and individuals throughout the province.



A family group of quadruplets

A study was made of the best method of poisoning magpies, and information was gathered from various sources with a view to obtaining the most effective type available. After some experiment a suitable poison was found and mixed with bait. Before the campaign could get under way, however, it was found necessary to pass legislation for the handling of poison by individuals other than Government employees, and at the meeting of the legislature the Setting of Poisons Act was changed to allow for the poisoning of magpies and other birds or animals. The campaign had to be set aside until the next fiscal year.

For a number of years the Game Branch carried out a policy of appointing licence vendors, fur tax collectors and various individuals throughout the province as voluntary game guardians. Many of these men were extremely interested in the conservation of game but they were loath to take action against their neighbours and friends, with the result that they accomplished very little, and practically nothing was done in the way of enforcement or supervision by a large number of those who lost interest in their appointment. The increase in game guardians, through the co-operation of the Forestry Branch, made it possible for the Department to relieve the voluntary guardians of the responsibility which they had so ably borne over a number of years. The responsibility was then placed upon those who were definitely paid guardians. Not only were the members of the Forestry Branch enlisted in this work, but also the members of the Fisheries Service, giving a combined increase in staff of approximately 150 salaried guardians.

For many years the question of control of fur and animals being shipped across provincial boundaries had been a vital problem. At a meeting of federal

A hunting party on the move

Photo by F. H. Riggall, Twin Butte, Alberta

and provincial game officials at Ottawa in the early part of 1942, an agreement was reached whereby the Dominion Government would make certain changes in the Game Export Act, making it compulsory for a person to have an export permit to ship fur or game across such provincial boundaries. Regulations were set up to prohibit common carriers such as railways, trucks and bus lines, from accepting shipments of fur and game from one province to another without an export permit being attached. This change was of material benefit to the Game Branch in the handling of the fur trade and was welcomed not only by game officials but also by the fur trade in general.

At the Dominion-Provincial Conference, referred to in the above paragraph, the question of damage being done by large numbers of ducks, especially in the eastern irrigation district of the province, came up for discussion. This province drew to the attention of the Dominion Government, under whom the Migratory Birds Convention Act is set up, that the extremely large increase in ducks had brought with it a very grave problem to the farmers in certain parts of this province, particularly in the irrigation districts. These districts are primarily producers of seed and with early cold weather and snow in the fall it was found that ducks and other birds descended upon these crops in large numbers before harvesting operations were completed, with the result that in some cases a large percentage of the crop was a total loss.

Through the efforts of the Department an examination was made by Dominion officials, in conjunction with our own examination, and a change was made in the Migratory Birds Convention Act regulations whereby the whole province or any portion thereof might be set aside as an area in which permits might be issued to shoot ducks which were damaging farm crops. This permit carried with it the privilege of allowing the farmer to secure the assistance of any number of shooters provided each one was supplied with a letter of authorization by the farmer under his permit. This regulation was of great assistance to farmers in these areas.

During the year under review there was closer co-operation with the fur farming industry of the province. This industry, which stands second in all provinces of the Dominion, had two struggling but very active associations, one located in the vicinity of Calgary and one in the vicinity of Edmonton. Through co-operation with the Game Branch local associations were formed at other points in the province, where fur farmers were gathered in districts, and a provincial

organization was set up in order to correlate the activities of all the local associations. This provincial body became responsible for the annual Alberta live animal show and the annual pelt show. They also co-operated with the Department in the holding of field days at local points throughout the province. These field days were of great value to the farmers in outlying points in view of their contact at the show with other breeders and advice given to them by experts attending the field day.

A review was made of the system under which fur farmers were licensed, and it was felt that the schedule should be re-drafted in order to relieve to some extent the small fur farmer and place a higher licence fee upon the farmer established on a more extensive scale, who was in a better position to pay it.

The year 1942-43 has been one of abundance of most game within the province. Migratory birds were here in greater number than for many years past. Native upland birds were at their peak with the newly introduced pheasant increasing tremendously in numbers. Big game was plentiful, with a decided increase in the number of elk, and the fur catch was good. Although market prices were low at the beginning of the fur year they rose rapidly during the season so that a very good price was obtained on practically all fur. It was a good year for game in Alberta.

Statistical information, relative to the administration of the Game Branch during the period under review, is given as follows:

CONVICTIONS UNDER THE GAME ACT, 1942-43

Number of convictions	213

CONFISCATED FURS

Amount realized from the sale of confiscated furs during period April 1, 1942 to March 31, 1943	$ 2,682.68

TRAP-LINE REGISTRATIONS

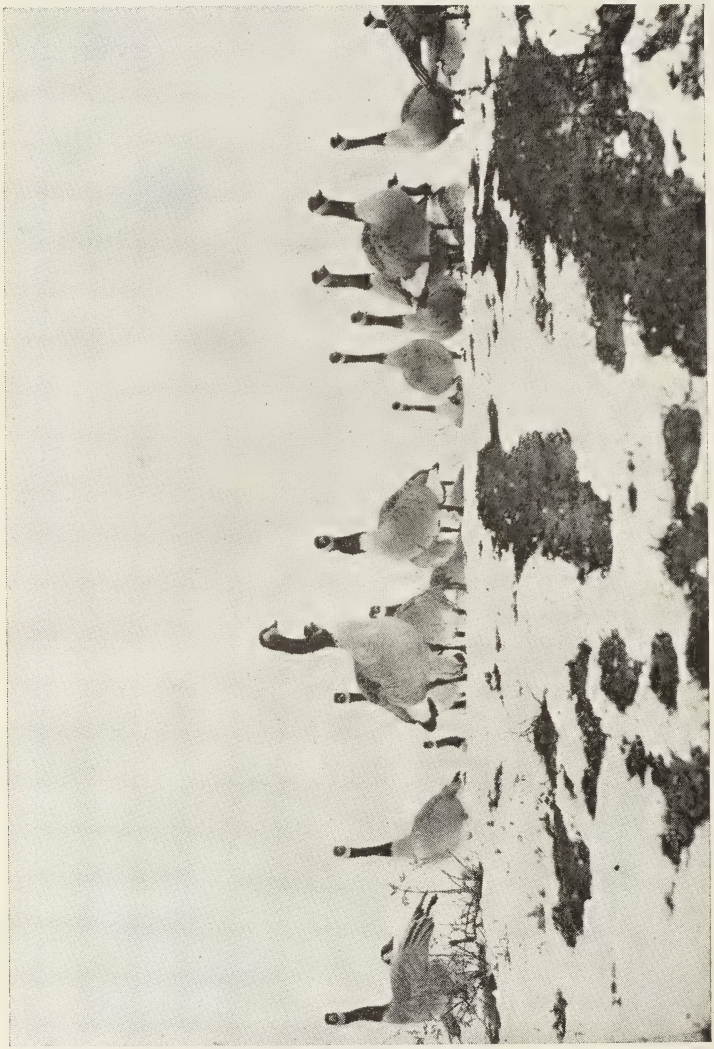
(April 1, 1942 to March 31, 1943)

Registered trap-line certificates issued outside of Forest Reserves, 1,010 at $10.00 each	$10,100.00
Registered trap-line certificates issued outside of Forest Reserves, free of charge to Treaty Indians—396.	
Registered trap-line permits on Forest Reserves, 112 at $10.00 each	1,120.00
Registered trap-line permits on Forest Reserves, issued free of charge to Treaty Indians—25.	

FUR DEALERS LICENCES, ETC.

(April 1, 1942 to March 31, 1943)

Resident fur dealer's licences to carry on business in a city, and elsewhere than in a city—426 licences	$ 4,865.00
Non-resident fur dealer's licences to carry on business in province, 9 at $100.00 each	900.00
Resident Travelling Fur purchasing agents' licences, 65 at $25.00 each	1,625.00
Tanner's licences, 5 at $10.00 each	50.00
Furrier's licences, 19 at $10.00 each	190.00
Resident travelling fur dealers' licences, (north of township 96)—8 at $15.00, 1 at $25.00	145.00
	$ 7,775.00



Inglewood Bird Sanctuary, Calgary

Photo by H. Pollard, Calgary

GAME LICENCES

(April 1, 1942 to March 31, 1943)

	Number of Licences		Fee	
Resident's Game Bird	11,536	at	$ 2.00	$ 23,072.00
Non-Resident's Bird (Canada)	9	at	10.00	90.00
Non-Resident's Bird (Non-Canada)	34	at	25.00	850.00
Resident's Big Game	6,912	at	2.00	13,824.00
Resident Trapper's	3,480	at	2.00	6,960.00
Guest Game Bird	3	at	5.00	15.00
Non-Resident's General Game	49	at	50.00	2,450.00
Permits to Collect	13	at	Various	105.00
Taxidermist's	8	at	5.00	40.00
Resident's Special	46	at	5.00	230.00
Non-Resident's Special	24	at	50.00	1,200.00
Guide's	52	at	2.50	130.00
Cold Storage	28	at	5.00	140.00
Game Farm	7	at	Various	16.00
Outfitter's	50	at	Various	615.00
Resident's Special Antelope	397	at	5.00	1,985.00
Non-Resident's Special Antelope	13	at	15.00	195.00
Permits to Export	147	at	Various	287.00
Fur Farmer's	1,146	at	Various	5,806.00
Muskrat Permits	39	at	1.00	39.00
Beaver Permits	60	at	1.00	60.00
				$ 58,109.00

FUR TAX REVENUE

(April 1, 1942 to March 31, 1943)

Fur tax	$84,396.85

MUSKRAT AND BEAVER PERMITS ISSUED, SEASON 1943-43

Muskrat permits issued	295
Muskrat reported taken	10,914
Beaver permits issued	126
Beaver reported taken	854

BOUNTY ON TIMBER WOLVES, TIMBER WOLF PUPS AND COUGAR

During the period April 1, 1942 to March 31, 1943, the following bounty was paid:—

444 timber wolves at $10.00	$4,440.00
84 timber wolf pups at $5.00	420.00
41 cougar at $15.00	615.00
	$5,475.00

ALBERTA FUR PRODUCTION

Season, July 1st, 1942 to June 30th, 1943

Kind of Fur	Total No. of Pelts	Average Value per pelt	Total Value
Badger	3,227	$ 7.25	$ 23,395.75
Bear	120	4.85	582.00
Beaver	5,595	41.70	233,311.50
Ermine (Weasel)	220,569	1.60	352,910.40
Fisher	16	55.50	888.00
Fox (Silver or black)	16,248	25.00	406,200.00
Fox (Cross)	12,716	17.50	222,530.00
Fox (Red)	31,410	13.55	425,605.50
Fox (Blue)	668	18.50	12,358.00
Fox (White)	12	33.43	401.16
Lynx	1,271	45.00	57,195.00
Marten	635	35.75	22,701.25
Mink	134,127	12.85	1,723,531.95
Muskrat	257,757	2.65	683,056.05
Otter	165	21.00	3,465.00
Rabbit	573,756	.05	28,687.80
Skunk	19,727	2.85	56,221.95
Squirrel	1,165,367	.36	419,532.12
Wolf (Coyote or Prairie)	23,678	16.25	384,767.50
Wolf (Timber)	477	17.75	8,466.75
Wolverine	12	15.50	186.00
Fitch	232	1.50	348.00
House Cat	329	.50	164.50
Raccoon	188	3.50	658.00
Wild Cat	4	2.00	8.00
	2,468,306		$5,067,172.18

NUMBER OF ANIMALS DECLARED ON FUR FARMS IN ALBERTA ON SEPTEMBER 1, 1942

Name	Quantity	Price	Total
Badger	4	$ 4.50	$ 18.00
Beaver	225	30.00	6,750.00
Fox, Silver	23,251	25.00	581,275.00
Fox, White Face Silver	386	32.50	12,545.00
Fox, Platinum	111	75.00	8,325.00
Fox, Cross	1,632	20.50	33,456.00
Fox, Blue	718	18.50	13,283.00
Fox, Red	140	15.75	2,205.00
Lynx	8	45.00	360.00
Marten	83	35.00	2,905.00
Mink	123,956	10.85	1,344,922.60
Muskrat	3,823	2.50	9,557.50
Wolf, Prairie	82	12.50	1,025.00
Fitch	318	1.00	318.00
Nutria	165	2.50	412.50
Rabbit	711	.75	533.25
Raccoon	40	3.50	140.00
	155,653		$2,018,030.85

NUMBER OF ANIMALS PELTED ON FUR FARMS IN ALBERTA AS PER EXEMPTIONS ISSUED

Name	Quantity	Price	Total
Fox, Silver	16,868	$25.00	$ 421,700.00
Fox, Cross	1,632	20.50	33,456.00
Fox, Red	140	15.75	2,205.00
Fox, Blue	535	18.50	9,897.50
Fitch	232	1.00	232.00
Marten	4	35.00	140.00
Mink	106,179	10.85	1,152,042.15
Wolf, Prairie	48	12.50	600.00
Muskrat	2,738	2.50	6,845.00
Beaver	157	30.00	4,710.00
Rabbit	644	.75	483.00
Nutria	55	2.50	137.50
Raccoon	10	3.50	35.00
	129,242		$1,632,483.15

NUMBER OF ANIMALS RETAINED FOR BREEDERS ON FUR FARMS IN ALBERTA FOR 1943 BREEDING SEASONS

Name	Quantity	Price	Total
Badger	4	$ 5.65	$ 22.60
Beaver	68	37.50	2,550.00
Fox, Silver	6,383	31.25	199,468.75
Fox, White Face Silver	386	40.50	15,633.00
Fox, Platinum	111	95.00	10,545.00
Fox, Blue	183	23.50	4,300.50
Lynx	8	56.25	450.00
Marten	79	43.75	3,456.25
Mink	17,777	16.00	284,432.00
Muskrat	1,085	2.50	2,712.50
Wolf, Prairie	34	13.75	467.50
Fitch	86	1.25	107.50
Nutria	110	3.25	357.50
Rabbit	67	1.00	67.00
Raccoon	30	4.50	135.00
	26,411		$ 524,705.10

LICENSED ALBERTA FUR FARMERS, SEASON 1942-43

Fox Farms	231	Badger	1
Mink	773	Nutria	13
Fox and Mink	86	Marten	6
Muskrat and Beaver	19	Lynx	2
Fitch	10		
Raccoon	5	Number of Licensed Fur Farmers	1,146

Mining Lands Administration

REPORT OF THE ASSISTANT SUPERINTENDENT OF MINING LANDS, H. H. SOMERVILLE

Another increase was shown in coal and oil production during the calendar year 1942 in comparison with the previous year. Coal output exceeded last year's tonnage by 784,215, and oil increased by 234,627 barrels.

Production totals of Alberta's minerals secured during the calendar year 1942 were as follows:—coal, 7,754,279 tons; petroleum, 10,136,296 barrels; natural gas, 32,443,588 thousands of cubic feet; salt, 22,179 tons; sodium sulphate, 8 tons; cement, 668,043 barrels; lime, 18,821 tons; sand and gravel, 481,644 tons; stone, 12,028 tons; gold, 34 fine ounces and silver, 2 fine ounces.

The total value of the minerals produced was $42,660,889 of which coal was valued at $22,562,352; petroleum, $15,517,266; natural gas *$1,622,179; salt, $221,790; sodium sulphate, $32; clay products, $1,013,497; cement, $1,307,353; lime, $155,760; sand and gravel, $218,914; stone, $40,436; gold, $1,309 and silver, $1.

Mineral rights, solid, liquid and gaseous, the property of the Crown in the right of the province, are not sold but are disposed of by lease, reservation, permit or grant for limited periods of time. The Division is responsible for the administration of regulations governing these rights on both provincial and school lands. Revenue is obtained from fees, rentals, bonuses and royalties and during the fiscal year a total of $1,319,084.09 was received.

Activity was again shown under the regulations governing the reservation of petroleum and natural gas rights for geological and/or geophysical examination, including any investigation relating to subsurface geology, and during this fiscal year more than 1,100,000 acres were granted under reservation. Before commencing or undertaking any geophysical operations, or the examination of the subsurface geology in the province, a licence must be procured from this Division at a fee of $25.00, and during the fiscal year 13 licences were issued.

Each petroleum and natural gas lease issued prior to June 1, 1941, on which the drilling of a well had not been commenced or which was not grouped in connection with the drilling of a well by September 1, 1942, was cancelled. The holder of each lease so cancelled was given the opportunity up to March 31, 1943, of applying for a new lease of the petroleum and natural gas rights contained in his cancelled lease.

During the year, 1,155 applications for mineral rights were made at the offices of the Mining Recorders at Edmonton, Calgary and Peace River which required the preparation of a similar number of files in the Division. Several inquiries were made daily as to the availability of mineral rights, mostly for petroleum and natural gas leases or reservations, by personal application at the office or by correspondence. The Division dispatched a total of 17,272 letters during the year under review.

The natural resources of Alberta were transferred from the Dominion Government to the control of the Government of Alberta of October 1st, 1930, and the following tabulations show the numbers and acreages of the various leases issued from that date to March 31st, 1943.

*Based on well-head valuation of 5c per Mcf.

Drillers on floor of Dingman, No. 1 discovery well, Turner Valley, 1914

Photo by H. Pollard, Calgary

Type of Lease	Active at date of transfer	Issued	Reinstated	Divided	Cancelled	Renewed	Active at March 31st, 1943
Petroleum and natural gas	18,863	9,986	113	374	27,039	191	2,106
Petroleum and natural gas, crown reserve	5	20	....	....	25	....	....
Coal, provincial lands	620	444	2	6	612	155	305
Coal, school lands	60	27	1	....	56	7	25
Quarrying	45	65	....	....	56	....	54
Quartz mining	4	....	....	....	....	....	4
Salt	1	1	....	....	1	....	1
Bituminous sands	4	3	....	....	5	....	2
Miscellaneous	1	4	....	....	2	1	2
Dredging	32	8	....	....	40	....	....
TOTALS	19,635	10,558	116	380	27,836	354	2,499

ACREAGE CONTAINED IN ABOVE LEASES

Type of Lease	Active at date of transfer	Issued	Reinstated	Cancelled	Renewed	Active at March 31st, 1943
Petroleum and natural gas	2,454,802	2,157,211	22,288	3,958,473	23,478	652,350
Petroleum and natural gas, crown reserve	6,160	22,561	....	28,721	....	....
Coal, provincial lands	236,984	131,762	85	181,391	90,575	96,865
Coal, school lands	9,570	2,743	53	6,405	1,464	4,227
Quarrying	1,675	739	.....	1,049	.....	1,365
Quartz mining	182	....	.....	....	.....	182
Salt	200	6,721	.....	200	.....	6,721
Bituminous sands	3,952	5,897	....	5,706	....	4,143
Miscellaneous	3,560	345	.....	20	22	3,863
TOTALS	2,717,085	2,327,709	22,426	4,181,965	115,539	769,716
Dredging (in miles)	145	24	.....	169	.....	.....

STATEMENT OF BUSINESS TRANSACTED, 1942-43—PETROLEUM AND NATURAL GAS

	Number	Acres
Leases issued	686	294,065
Leases cancelled and relinquished	1,809	366,612
Leases reinstated	22	4,166
Reservations granted	27	1,103,059
Reservations cancelled and relinquished	60	3,615,433

Fees, rentals and bonuses collected	$291,352.63
Royalties collected	630,193.57
TOTAL	$921,546.20

COAL

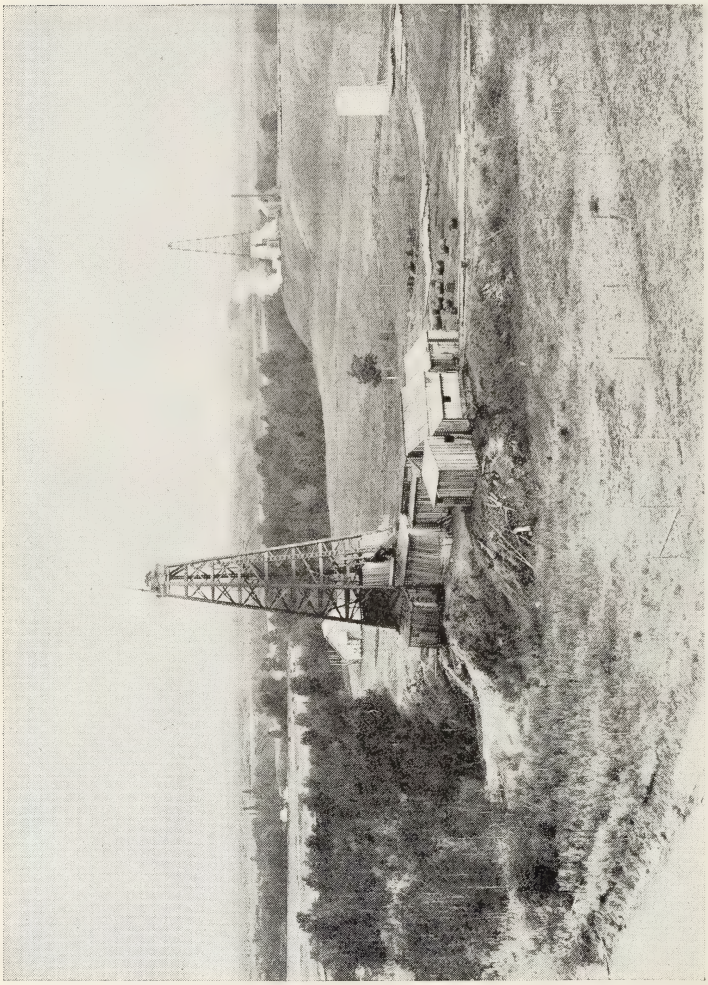
	Number	Acres
Leases issued on provincial lands	15	2,812
Leases cancelled and relinquished on provincial lands	21	4,288
Leases reinstated on provincial lands	....	.....
Leases issued on school lands	....	....
Leases cancelled and relinquished on school lands	1	287
Domestic permits issued	11	.....

Fees and rentals collected	$ 84,030.37
Royalties collected	260,313.62
TOTAL	$344,343.99

QUARRYING

	Number	Acres
Leases issued	4	106
Leases cancelled and relinquished	6	5
Sand, stone and gravel permits issued	23	....

Fees and rentals collected	$ 1,283.73
Royalties collected	8,523.90
TOTAL	$ 9,807.63



Dingman, No. 1 in foreground and Dingman, No. 2, first two wells in Turner Valleey, 1914
Photo by H. Pollard, Calgary

MISCELLANEOUS

	Number
Bituminous sands leases issued	1
Bituminous sands leases cancelled	1
Permits to collect bitumen issued	3
Alkali permits issued	...
Quartz mining claims granted	1
Quartz mining certificates of work issued	8
Powers of Attorney (quartz) filed	2
Placer claims granted	19
Powers of Attorney (placer) filed	...
Bar-digging permits issued	...
Salt leases issued	...
Geophysical licences issued	13
Fees, rentals and royalties collected	$43,386.27

ASSIGNMENTS REFISTERED, 1942-43

Nature	Number
Petroleum and natural gas	662
Coal, provincial lands	8
Coal, school lands	2
Quarrying	1
Miscellaneous	1
TOTAL	674

Petroleum and Natural Gas

Development of Leases.—The regulations provide that approved expenditures incurred in actual development of petroleum and natural gas rights, acquired under lease or reservation, may be accepted in satisfaction of rentals which otherwise would be payable in cash. During the fiscal year under review, rentals due the province amounting to $409,180.56 were satisfied from such expenditures and so reduced the revenue of the Division by that amount. The total revenue received in cash for fees, rentals and bonuses was $291,352.63 which, added to the expenditure accepted in lieu of rentals, makes a total of $700,533.19.

Disposal by Public Tender.—Bonuses amounting to $3,566.75 were accepted during the fiscal year at sales by public tender of petroleum and natural gas rights formerly comprised in cancelled leases or reservations.

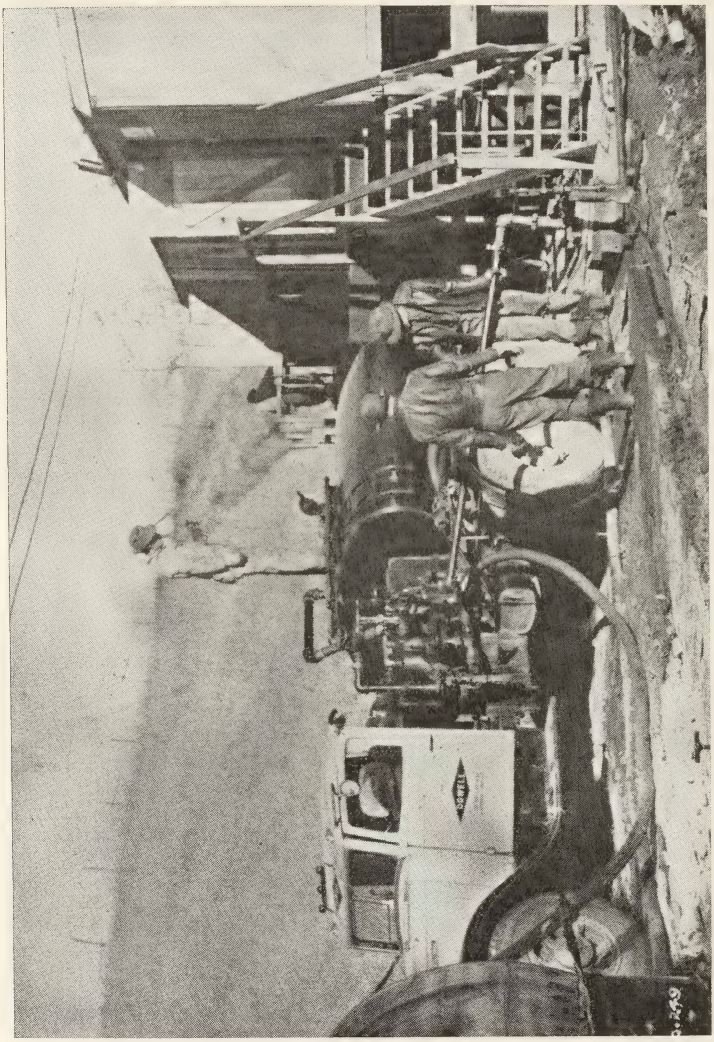
Number and Area of Leases.—During the year, 686 petroleum and natural gas leases were issued covering an area of 294,065 acres and at the close of the fiscal year a total of 2,106 leases were active containing an area of 652,350 acres.

Reservations.—There was continued activity under the regulations governing the reservation of petroleum and natural gas rights, the property of the Crown, for geological and/or geophysical examination, including any investigation relating to sub-surface geology. By Order in Council, No. 1901/42, dated December 21, 1942, provision was made for granting credit for expenditures incurred in the drilling of a well for correlation purposes on a site withdrawn from a reservation, and such credit could be applied to the rental for the first year of leases following the reservation, but not to exceed an area of 50,000 acres. Twenty-seven reservations were granted in this fiscal year covering an area of 1,103,059 acres and 60 were cancelled containing an area of 3,615,433 acres. At the close of the fiscal year 1,169,041 acres were under reservation.

Coal

New coal leases may be granted either for the extension of existing operations or for small mines where the local market cannot be economically supplied from operating mines in the vicinity. In the fiscal year, 15 leases were issued containing 2,812 acres, being made up of new and renewal leases. There are now 330 active leases comprising 101,092 acres.

During the current fiscal year the following quantity of coal, subject to Crown royalty, was mined:—



Acidizing Major, No. 4, Turner Valley

Photo by H. Pollard, Calgary

	Tons
Provincial lands' leases	3,289,508
School lands' leases	496,646
Coal lands' and mineral sales	1,049,693
TOTAL	4,835,847

Crown royalties collected on coal mined in Alberta since April 1st, 1907, are as follows:—

CROWN ROYALTIES COLLECTED ON COAL

Fiscal Year	Royalty Paid	Fiscal Year	Royalty Paid
1907-08	$ 7,621.67	1920-21	$ 190,545.80
1908-09	5,322.39	1921-22	185,436.88
1909-10	153,559.98	1922-23	171,723.83
1910-11	218,932.88	1923-24	210,389.53
1911-12	104,894.55	1924-25	148,979.10
1912-13	142,997.79	1925-26	188,277.94
1913-14	147,198.75	1926-27	218,150.10
1914-15	104,489.77	1927-28	231,757.96
1915-16	67,190.17	1928-29	254,616.27
1916-17	149,447.82	1929-30	248,083.71
1917-18	144,634.75	1930-31 (First half)*	90,052.07
1918-19	175,687.66		
1919-20	181,641.80		$3,741,633.17

	Provincial Lands	School Lands	
1930-31 (Last half)*	$105,126.51	$ 5,014.29	110,140.80
1931-32	145,170.33	6,354.09	151,524.42
1932-33	143,800.01	4,971.78	148,771.79
1933-34	193,527.82	9,520.13	203,047.95
1934-35	176,122.43	12,365.39	188,487.82
1935-36	186,691.23	19,779.76	206,470.99
1936-37	175,214.33	18,596.00	193,810.33
1937-38	158,227.11	15,159.15	173,386.26
1938-39	143,070.78	9,270.23	152,341.01
1939-40	168,802.75	7,812.78	176,615.53
1940-41	200,045.68	15,841.24	215,886.92
1941-42	216,777.95	22,849.83	239,627.78
1942-43	235,613.19	24,700.43	260,313.62
TOTAL			$6,162,058.39

*Date of transfer of Alberta's natural resources from federal to provincial control, and date also of the creation of the Department of Lands and Mines, Alberta, October 1st, 1930.

Permits for Domestic Use.—Permits to mine coal on provincial lands by strip-mining methods for domestic use may be issued to actual settlers on payment of a fee of one dollar and royalty at the rate of ten cents a ton. Each permit expires on March 31st following its date of issue. During the year 11 permits were issued authorizing an extraction of 230 tons, none of which could be bartered or sold.

Quarrying

Three quarrying leases were issued on surveyed lands containing an area of 106 acres and one lease was issued during the fiscal year for removing gravel from the bed of the Oldman River. Extraction of 183,754 cubic yards of sand, gravel, limestone and shale from provincial lands was reported for the calendar year, 1942.

At the close of the fiscal year, 54 leases were active containing an area of 1,365 acres.

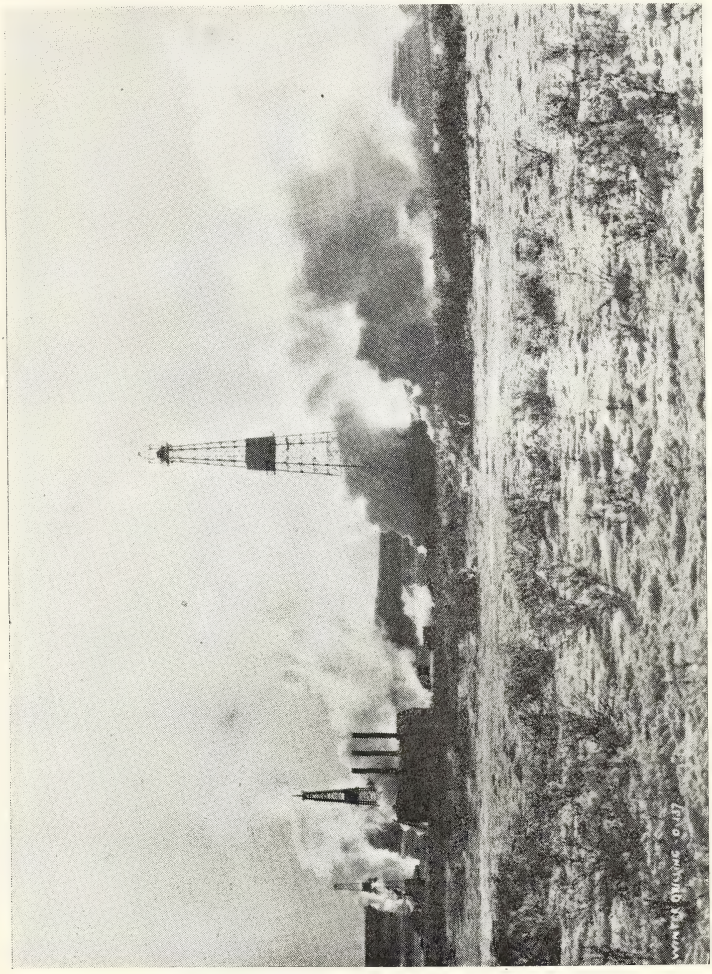
Permits.—Sand, stone and gravel permits are issued on the beds of rivers and lakes at a fee of $2.50 and a royalty of five cents a cubic yard and expire on the 30th day of November following the date of issue. In this fiscal year 22 permits were issued for the extraction of 71,898 cubic yards.

Dredging

No applications for dredging leases were made during the year.

Diamond bits, before and after use, and core of porous lime

Photo by H. Pollard, Calgary



Winter drilling in Turner Valley

Photo by H. Pollard, Calgary

Quartz

One new claim was recorded and seven claims were renewed by certificates of work during the fiscal year in township 14, range 3, west of the 5th meridian. The claim in the Drumheller district for the recovery of bentonite was renewed and royalty of $73.83 was paid on this claim representing 2½% of the value of the bentonite recovered.

The four quartz leases covering 181.8 acres issued by the Department of the Interior are still active.

Placer

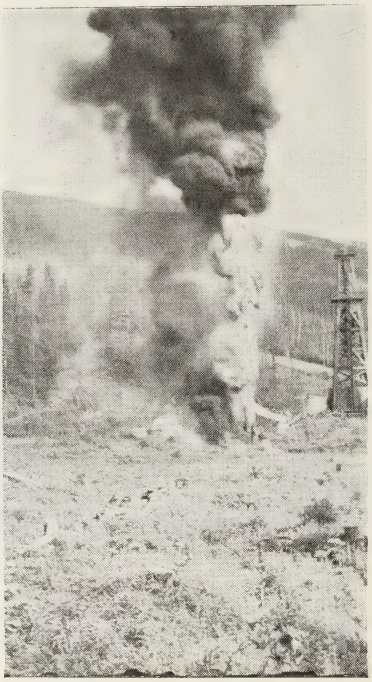
Activity along the Athabaska River in townships 63 and 64, range 3, west of the 5th meridian, continued during the year and 19 grants were issued for staked claims. Recovery of 4 ounces of gold was reported during the year.

Bituminous Sands

Two leases are active at present in the McMurray area containing 4,143 acres, and two separation plants are experimenting in the area. Absand Oils Limited treated 11,156 tons extracting therefrom 10,041 barrels of crude oil.

Sodium Chloride (Common Salt)

The salt plant, operated by Industrial Minerals Limited during the fiscal year, reported extraction of 22,179 tons of salt on which royalty at the rate of



Flare from completed Ram River, No. 2 well

Ram River, No. 3 well drilling—94 foot steel derrick

twenty cents per ton was collected. This plant is located on the lease issued in 1937 covering 6,720.82 acres.

Miscellaneous Leases

The lease covering an area of 22.5 acres for the removal of sodium sulphate (glauber salts) occurring in comparatively pure condition in sloughs and shallow lakes was renewed for a further period of five years. Production of eight tons was reported for the fiscal year.

Special Permits

Two annual permits for the collection of bitumen issuing from old wells in the Peace River District were again renewed and a similar permit was issued on another well in the Peace River District. Collection of 2,318 gallons was reported during the year.

Petroleum and Natural Gas

The drilling and production of petroleum and natural gas wells in the province are administered by The Petroleum and Natural Gas Conservation Board, New Telephone Building, Calgary, and particulars as to drilling activity and statistical data are now included in its reports.

Technical Division

REPORT OF THE SUPERINTENDENT OF THE TECHNICAL DIVISION, T. W. DALKIN

Notifications (*Land Patents*).—By March 31st, 1943, a grand total of almost three and a half million acres of land had been patented by the Crown. The exact total, as at this date, was 3,498,477.426, of which 229,699.519 acres were patented during the fiscal year now under review. This latter figure is about 133 acres more than the previous year. A total of 1,516 notifications were issued, which includes 133 for subdivision lots covering 192 parcels. Complete details are as follows:—

Classification	Notifications	Area (Acres)
Homesteads	924	142,577.074
Sales (including lots in subdivisions)	90	3,435.61
Second homesteads	192	29,044.44
Soldier grants	19	2,950.71
Special grants	128	464.955
Transfer of lands	3	25,333.33
Revival of titles	11	2,381.07
Quit claims	2	80.00
Exchanges of land	4	334.00
Exchanges of land (Special Areas)	31	6,848.78
Certificates of tax sale redemption	5	800.00
School lands' sales	106	15,448.55
School lands' grants	1	1.00
TOTALS	1,516	229,699.519

Details of sales in subdivisions which are included in the 90 notifications referred to above:

	Notifications	No. of Lots	No. of Blocks
Bellevue, Plan 149 Gen.	1	1	....
Bideford, Plan 1509 BA	1	2	....
Canmore, Plan 39 Gen.	7	8	....
Carbondale, Plan 232 AI	1	7	....
Coleman, Plan 6808 CU	2	3	....
Kimball, Plan 928 J	1	3	....
McMurray Townsite, Plan 616 AO	1	1	....
Oyen, Plan 3732 CD	1	2	....
Peace River Landing Settlement, Plan 5617 BK	1	6	....
Retlaw, Plan 7285 AQ	1	2	....
Richdale, Plan 6978 AW	1	1	....
Walsh Townsite, Plan 3644 B	1	2	....
TOTALS	19	38	....

School lands' sales included in the 106 notifications referred to above:

	Notifications	No. of Lots	No. of Blocks
McLennan Townsite, Plan 1394 EU	11	14	....

Special grants included in the 128 notifications referred to above:—

	Notifications	No. of Lots	No. of Blocks
East Coulee, Plan 4128 EQ	102	128	1
Lamerton, Plan No. 75	1	12	....
TOTALS	103	140	1

Reference was made in the 1940 report to a survey that was made by this Department in order to eliminate an unsatisfactory squatter situation at East Coulee that had arisen between the Empire Collieries, Limited and several of their employees and others who had squatted upon the land. After a plan of survey was prepared and registered in the Land Titles Office this Department negotiated with a "Citizens' Committee" and, as payments were received by that committee

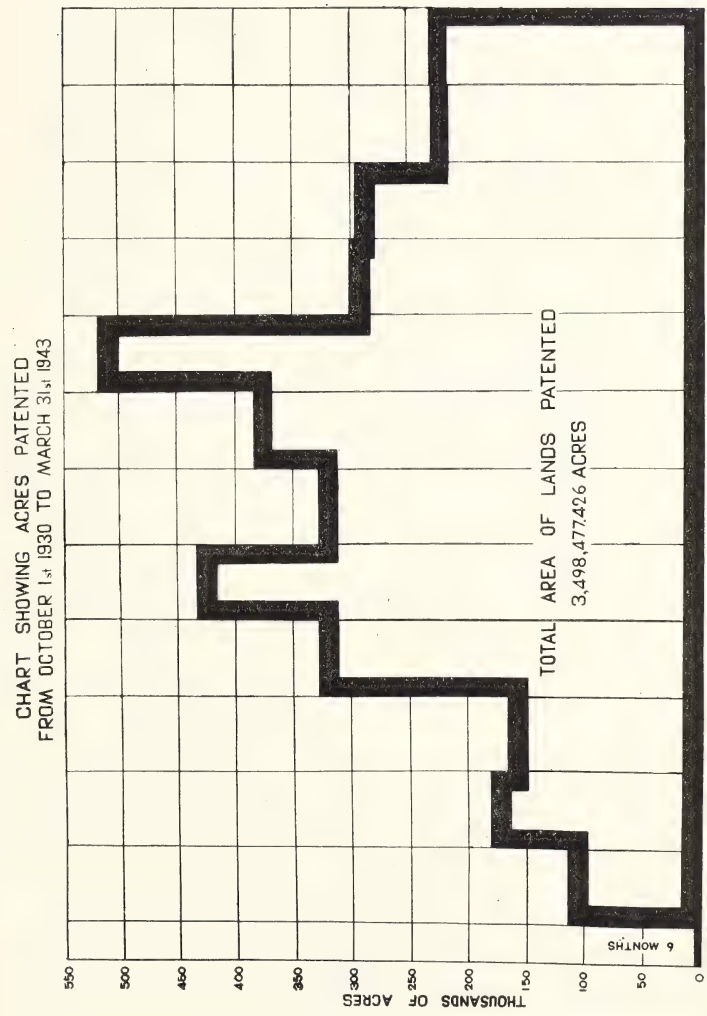


CHART SHOWING ACRES PATENTED
FROM OCTOBER 1st 1930 TO MARCH 31st 1943
TOTAL AREA OF LANDS PATENTED
3,498,477.426 ACRES
THOUSANDS OF ACRES
0
50
100
150
200
250
300
350
400
450
500
550
6 MONTHS
1931
1932
1933
1934
1935
1936
1937
1938
1939
1940
1941
1942
1943
FISCAL YEARS ENDING MARCH 31st

for the lots, the notifications were issued to the owners. This procedure took a great deal of time and patience but it can now be reported that through the assistance rendered by this Department the matter has been brought to a successful conclusion and the 102 notifications covering 128 lots in East Coulee, appearing in the details of notifications above, are evidence of this fact. The balance of the lots in the subdivision not included in these notifications will now be included in a notification to be issued in favour of the Citizens' Committee for administration by that body.

The three transfers of land, aggregating 25,333.33 acres, need, perhaps, some explanation. When the British Block was formed in the Tilley East Area, the Hudson's Bay Company, at the request of the Department of National Defence, transferred to the province all the Hudson's Bay lands in that area as defined at that time. Subsequently the boundaries of the British Block were changed and one of the above transfers comprising 24,047.73 acres, more or less, lying within the amended boundaries, was transferred to His Majesty the King in the right of Canada, and an area comprising 1,125.60 acres of these Hudson's Bay lands lying outside of the amended boundaries was transferred back to the Hudson's Bay Company. The balance of this total area of 25,333.33 acres, namely 160 acres, represents a transfer to the Lomond Consolidated School District No. 20.

Whilst the area patented comprised 229,699.51 acres, more or less, the Crown received title to almost an equal amount of land through tax recovery proceedings and revestment, the majority of the lands being in the Special Areas, particulars of which are as follows:—

	No. of Titles	Area Inside Special Areas, Acres	Area Outside Special Areas, Acres	Total Acres
Tax Recovery	632	211,006.39	.....	211,006.39
Revested	63	7,434.53	2,099.52	9,534.05
Total	695	218,440.92	2,099.52	220,540.44

This total figure of 220,540.44 acres greatly exceeds last year's tax recovery and revestment lands by 84,756.85 acres. Taking the above figures into consideration the total areas of land acquired by the province since the return of the resources are as follows:—

Inside Special Areas	2,165,726.92 acres
Outside Special Areas	1,029,997.52 acres
Total	3,195,724.44 acres

Through negotiations with the Canadian Pacific Railway Company arrangements were made whereby this Company transferred an area of 1,810.71 acres of unsubdivided towniste holdings scattered through the Special Areas, and in the acreage referred to above as being revested in the Special Areas, it is interesting to know that the following areas are included:—

Townsite	Land	Area
Atlee	Pt. L.S's 5, 6, 11, 12 Sec. 5-22-7 W 4th Meridian	93.19 acres
Bindloss	Pt. S.W. ¼ 19-22-2 W 4th Meridian	56.38 acres
Buffalo	Pts. Sec. 29-21-5 W 4th Meridian	358.79 acres
	Pts. Sec. 30-21-5 W 4th Meridian	527.50 acres
Empress	Pts. E. ½ 14-23-1 E 4th Meridian	231.52 acres
Halsbury	Pts. N.W. ¼ 18-21-8 W 4th Meridian	140.42 acres
Majestic	Pts. S.W. ¼ 31-21-6 W 4th Meridian	133.45 acres
Pancras	Pts. N.W. ¼ 26-21-4 W 4th Meridian	111.58 acres
Sharrow	Pts. S.E. ¼ 35-22-2 W 4th Meridian	145.28 acres
Stair	Pt. S.E. ¼ 19-13-6 W 4th Meridian	12.60 acres
	Total	1,810.71 acres

Since the inception of this Department on October 1st, 1930, notifications have been issued for

264 school sites,
41 church and cemetery sites,
61 cemetery sites.

The number of school sites indicates the great interest in and growth of education in the province. School sites are free grants from this Department, but the church and cemetery sites can only be obtained by purchase in accordance with the regulations. On and after April 1st, 1941, all the Land Titles Office registration fees have been collected by this Department, so that the registration of the notification may be effected and title issued without delay. Previous to this date, it was the obligation of each owner to send direct to the Registrar the fees payable in connection with the registration of the notification and the issue of certificate of title, covering these sites, which include school sites. According to a check that has just been made, however, there are still lying in the Land Titles Office notifications covering

129 school sites,
11 church and cementery sites,
3 church sites,
9 cemetery sites,

for which the Land Titles Office has not received registration fees, and for which consequently no certificates of title have issued. Whilst no reflection is made here upon the efficiency of the secretary-treasurers of the various school districts, it is nevertheless a fact that they appear to be dilatory, and some effort should be made to pay the registration fees and clear the records in the Land Titles Office as well as in this office.

Licences of Occupation.—Plans were checked and in some cases prepared and descriptions drawn for licences of occupation, which were granted for various purposes to private individuals, companies and corporations. Included in the smaller projects were such licences of occupation for the construction, operation and maintenance of reservoirs, for the storage of water for irrigation purposes, a right of way to a spring to carry the water supply to the village of Grimshaw, a pipe-line right of way for a pump house for the Northern Alberta Railways Company and also a site for a boat house on Crowsnest Lake in the south-east quarter of section 9, township 8, range 5, west of the 5th meridian. Rights for another small project but in a way rather unique were granted in the south-west quarter of section 3, township 57, range 11, west of the 5th meridian, which permitted the construction, operation and maintenance of a ditch for the purpose of diverting water into a swimming pool, a community project. Other licences of occupation which were granted covered rights for the construction and maintenance of roadways for logging operations, whilst the Calgary Power Company, Limited, were granted two licences of occupation for the purpose of constructing, maintaining and operating two power transmission lines, one over a right of way with a general width of 66 feet and comprising an area of 40.67 acres, more or less, extending from Canmore to Exshaw. The other starts at the north-west quarter of section 7, township 26, range 11, west of the 5th meridian, near Anthracite, to the west boundary of the Stony Indian Reserve. This right of way varies in width from 30 to 66 feet and contains an area of 132.77 acres, more or less.

Exchanges of Land.—Thirty-one residents, mostly old timers in the Special Areas, benefitted through our Exchange of Land Policy, whereby one or more quarter sections of Crown lands were exchanged for an equal area of settlers' lands.

In the dried out areas these settlers have to face many problems, and it is a source of satisfaction to know that their troubles have been alleviated to a certain extent by the exchange of lands. Investigation of all applications are made by the Special Areas Board at Hanna in the first place, and the approval of the Board must be given before they are referred to Edmonton. Here a final investigation is made, including a thorough examination of all titles affected and the amount of indebtedness outstanding by way of taxes, liens, etc., and upon approval of the Deputy Minister being obtained then an Order in Council is requested permitting of the exchange. Many reasons are given as to why the exchanges should be granted, but the main reason is chiefly to consolidate the residents' holdings. Other reasons are that the lands are more suitable, closer to schools, closer to a railway or a better water supply, etc., as the information which follows will reveal.

Name and Address	Lands transferred to Crown	Lands granted in exchange	O.C. No. Date
D. N. Macdonald, Consort	S.W. 1-36-5-4 (161 acres)	N.W. 35-35-5-4 (160 acres)	647/41 13/5/41

This land was acquired by transfer by Mr. Macdonald from Mr. L. B. Macdonald. The exchange was granted in order to consolidate his holdings.

K. Konowsky, Redcliff	S.E. 27-13-10-4 (160 acres)	S.E. 28-13-9-4 (160 acres)	647/41 13/5/41

Mr. Konowsky was the original homesteader on the S.E. 27-13-10-4 and obtained a title on the 18th of December, 1920. This exchange was granted in order to consolidate his holdings.

M. T. Johnson, Sedalia	N.W. 32-33-4-4 (160 acres)	N.E. 9-33-5-4 (160 acres)	647/41 13/5/41

Mr. M. T. Johnson obtained his land from M.D. Stewart No. 302 and acquired title in 1929. The exchange was granted in order to obtain more suitable land with better surrounding roads and locate his children close to a school.

G. Gunderson, Jenner	N.E. 28-19-9-4 (160 acres)	N.W. 5-20-9-4 (160 acres)	647/41 13/5/41

Mr. Gunderson purchased his land and obtained title in 1918, the exchange being granted in order to consolidate his holdings.

L. Hvame, Bowell	N.W. 13-16-7-4 (160 acres)	S.E. 28-14-7-4 (160 acres)	647/41 13/5/41

Mr. Hvame obtained title to his land on the 27th of January, 1936, and as well as consolidating his holdings he obtained a better water supply.

Mrs. M. O. Michaels, Excel	N.E. 13-30-5-4 (160 acres)	S.W. 35-28-6-4 (160 acres)	647/41 13/5/41
	S.E. 13-30-5-4 (160 acres)	S.E. 35-28-6-4 (160 acres)	

The north-east of section 13 was Mrs. Michaels' homestead, for which she obtained a patent in 1913; the south-east of section 13 was acquired by sale from the Crown in 1917 and this exchange brought her closer to railway facilities and a more settled part of the area.

James G. Stewart, Sunnynook	S.W. 32-27-11-4 (160 acres)	N.E. 32-27-11-4 (162 acres)	647/41 13/5/41

This quarter section was Mr. Stewart's homestead to which he acquired title in 1935. The exchange resulted in obtaining a water supply and improvements.

A. H. Reutemann, Hanna	N.E. 13-29-14-4 (160 acres)	S.W. 14-29-14-4 (160 acres)	647/41 13/5/41

Mr. Reutemann obtained title to the north-east quarter of section 14 in 1934 by purchase, and this exchange was granted in order that he may have access to irrigable land.

G. E. Griffith, Cessford	S.E 32-23-11-4 (160 acres)	N.E. 1-24-12-4 (160 acres)	647/41 13/5/41

Mr. Griffith was the original homesteader on this land and acquired patent in 1916. This exchange will consolidate his holdings.

G. Hausch, Hanna	N.E. 12-32-12-4 (160 acres)	S.W. 25-32-12-4 (160 acres)	647/41 13/5/41

Mr. G. Hausch obtained by purchase title to the north-east 12-32-12-4 in 1929, the exchange being granted to consolidate his holdings.

R. W. Ringdahl, Sunnynook	W. ½ 21-27-11-4	S. ½ 14-27-11-4	647/41
	N.W. 24-27-11-4	E. ½ 15-27-11-4	13/5/41
	S.W. 25-27-11-4	S.E. 22-27-11-4	
	N.E. 26-27-11-4 (830 acres)	(803.33 acres)	

Mr. Ringdahl obtained titles to his lands from 1917 to 1928 and this exchange results in the consolidation of his holdings.

Name and Address	Lands transferred to Crown	Lands granted in exchange	O.C. No. Date
J. T. Rowe, Sunnynook	N.W. 4-27-10-4 (161 acres)	N.W. 16-27-10-4 (161 acres)	647/41 13/5/41
Mr. J. T. Rowe homesteaded this quarter and obtained patent in 1929. This exchange will consolidate his holdings.			
A. D. Polson, Consort	N.W. 5-36-5-4 (160 acres)	S.E. 36-35-6-4 (160 acres)	1028/41 22/7/41
Mr. Polson homesteaded his land and acquired patent in 1920, and through this exchange his holdings are now consolidated.			
W. McNally, Cappon	N.W. 34-24-5-4 N.E. 27-24-5-4 (320 acres)	S. ½ 4-29-5-4 (320 acres)	894/41 2/7/41
Mr. McNally's lands are both his homesteads and he received patent to each of his quarter sections in 1915 and 1933 respectively. This land is located closer to town and railway facilities and his children are also closer to a school.			
Mrs. I. B. King, Travers	S.W. 7-15-19-4	S.W. 4-15-19-4	336/42 24/3/42
This is really an exchange of homestead entries, which consolidated her holdings.			
Mrs. B. H. King, Travers	N.W. 6-15-19-4 (157.99 acres)	S.E. 5-15-19-4 (160.59 acres)	337/42 24/3/42
Mrs. B. H. King acquired title to her land by purchase in 1930 and through this exchange her holdings are consolidated. Mrs. I. B. King and Mrs. B. H. King are one and the same person.			
Mr. G. M. King, Travers	N.E. 1-15-20-4 (158 acres)	S.E. 9-15-19-4 (134.03 acres)	338/42 24/3/42
Mr. G. M. King obtained title by purchase to the north-east quarter of one in 1936, and this exchange consolidated his holdings.			
R. Gardiner, Excel	S.E. 19-30-4-4 (160 acres)	S.E. 24-30-5-4 (160 acres)	446/42 9/4/42
Mr. Gardiner purchased this land and obtained title in 1923, and through this exchange his holdings are consolidated.			
R. N. Rose, Redcliff	W. ½ 23-13-6-4 (320 acres)	E. ½ 14-13-6-4 (320 acres)	447/42 9/4/42
Mr. Rose purchased his half section in 1934 and through this exchange he now has access to water supply and pasture.			
W. H. Caswell, 738 Crescent Road, Calgary, Alberta	N.E. 22-29-3-4 (160 acres)	N.E. 9-29-2-4 (159.07 acres)	559/42 28/4/42
Mr. Caswell homesteaded his quarter and obtained patent in 1926 and his holdings are consolidated through this exchange.			
H. H. Forster, Cessford	N.E. 28-23-13-4 (160 acres)	S.E. 21-23-13-4 (160 acres)	560/42 28/4/42
Mr. Forster was the original homesteader on this land and acquired patent in 1918 and his holdings are consolidated through this exchange.			
J. T. Watkins, Ranch Box, Medicine Hat	N. ½ 23-13-4-4 (318.10 acres)	N.W. 35-13-4-4 N.W. 26-13-4-4 (320 acres)	562/42 28/4/42
Mr. Watkins obtained title to this land in 1926 by purchase and through this exchange his holdings are consolidated.			
S. Andahl, Rose Glen	S.W. 35-15-4-4 (161 acres)	S.E. 18-16-3-4 (160 acres)	614/42 5/5/42
Mr. Andahl was the original homesteader on the south-west 35-15-4-4 and obtained patent in 1914, and through this exchange his holdings are consolidated.			
R. Peterkin, Rose Lynn	N.W. 16-28-15-4 (161 acres)	N.W. 15-28-15-4 (161 acres)	615/42 5/5/42
R. Peterkin homesteaded the north-west 16-28-15-4 and received patent in 1934, and through this exchange his holdings are consolidated.			
E. G. Haley, Lomond	S.E. 18-17-19-4 (158.98 acres)	S.E. 16-16-18-4 (160 acres)	812/42 9/6/42
Mr. Haley obtained title to this land in 1929 by purchase and through this exchange his holdings are consolidated.			
G. A. Skretting	N.E. 17-18-18-4 S.E. 18-18-18-4 (320 acres)	N. ½ 28-14-18-4 (320 acres)	813/42 9/6/42
Mr. Skretting homesteaded the south-east 18 and received patent in 1938. The other quarter section was acquired by purchase in 1935. Through this exchange his children are now located closer to school.			

Name and Address	Lands transferred to Crown	Lands granted in exchange	O.C. No. Date
Mrs. H. B. Tew, Medicine Hat	N.E. 7-13-4-4 (160 acres)	S.E. 16-13-4-4 (160 acres)	1128/42 6/8/42

Mrs. Tew has now consolidated her holdings through the transfer of this land to the Crown, which she purchased in 1927.

W. G. Clark, Altario	S.E. 25-32-2-4 (160 acres)	N.E. 35-32-2-4 (160 acres)	1129/42 6/8/42

Mr. Clark homesteaded the south-east 25-32-2-4 and received patent in 1934. Through this exchange he is now closer to his buildings.

H. J. Roeser, Redcliff	S.W. 3-14-9-4 (160 acres)	S.W. 30-13-7-4 (160 acres)	1150/42 6/8/42

Mr. H. J. Roeser obtained title to this land in 1939 and through this exchange his holdings are now consolidated.

H. Dean	E. ½ 36-32-7-4 N.W. 36-32-7-4 (480 acres)	E. ½ 9-32-7-4 N.W. 9-32-7-4 (476.76 acres)	1203/42 18/8/42

The north-east ¼ of section 36 was Mr. Dean's homestead, for which he obtained patent in 1914; the south-east ¼ of section 36 and the north-west ¼ of section 36 were acquired by purchase in 1910 and 1935 respectively. Through this exchange habitable buildings were obtained.

T. Erickson, Redcliff	S.E. 6-16-6-4 (160 acres)	N.W. 5-14-6-4 (160 acres)	1028/41 23/7/41

This is Mr. Erickson's homestead for which he received patent in 1916 and through this exchange he has better land and also is nearer to a highway.

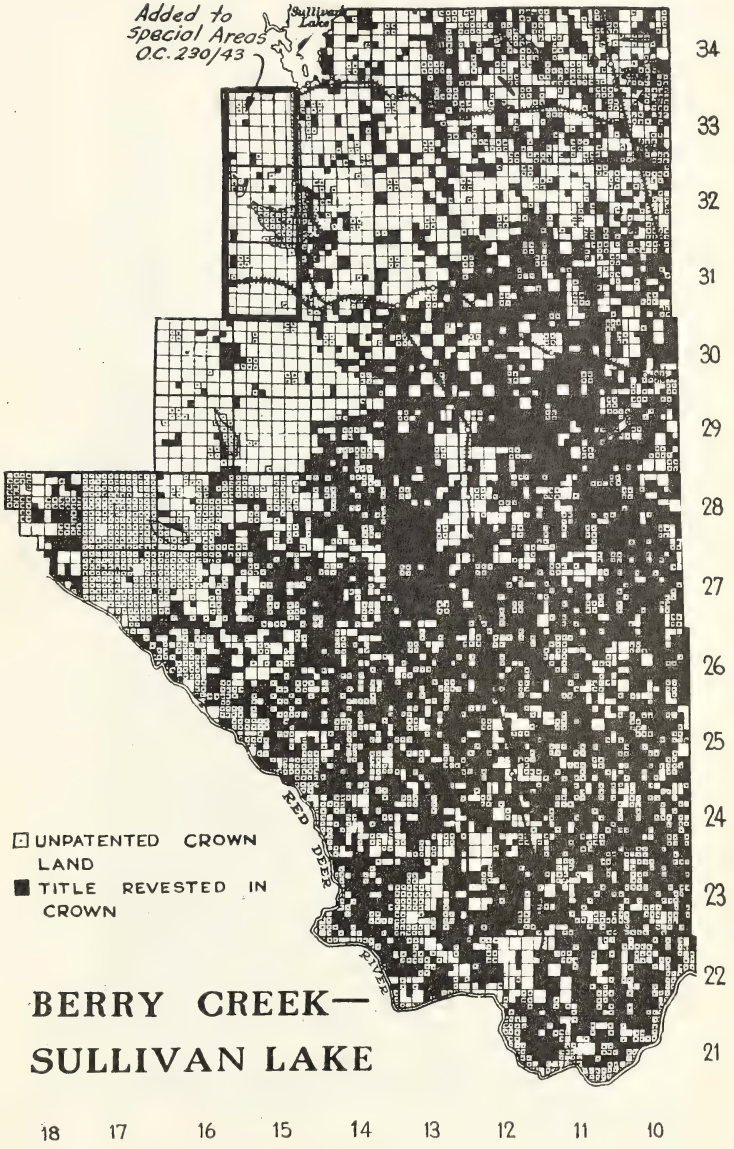
M. E. Butts, Chinook	N. ½ 10-31-7-4 (320 acres)	N. ½ 27-28-7-4 (320 acres)	692/42 19/5/42

Mr. Butts purchased this land and obtained title in 1930 and through this exchange his children are now closer to school and also a town.

It is the endeavour of this Division to deal with all exchanges as expeditiously as possible, but many of the titles covering the settlers' lands are clouded with encumbrances and such encumbrances must be discharged in order that clear titles may issue in the name of the Crown, thus causing a certain amount of delay. Particularly is this so when the titles are subject to Dominion liens, which can only be discharged by Ottawa by making application through the Seed Grain Board in Edmonton. This procedure often takes months and at the present time there are at least six exchanges lying in the office waiting for the discharge of these Dominion Government liens.

Speaking of exchanges, negotiations are proceeding with the Credit Foncier Franco-Canadian for an application on behalf of that Company and the Holland Canada Mortgage Company, Limited, to exchange some thousands of acres of land scattered through the Special Areas for one large consolidated block of lands. Preliminary stages only have been reached and many plans have been prepared, showing both these companies holdings, including the Vee Bar Vee Ranch and other ranches in the vicinity, in an endeavour to work out some scheme acceptable to all concerned. The block of lands that is desired by these companies lies to the south of the Red Deer River in townships 21 and 22, Ranges 8 and 9, west of the 4th meridian, and, as this year closes, this important exchange is still receiving the careful consideration of the Government.

Government controlled Lands in the Special Areas.—In order to get a bird's-eye picture of the government lands, i.e. unpatented Crown lands, tax recovery lands and revestment lands, maps are herewith submitted of the Sounding Creek-Neutral Hills Area, the Berry Creek-Sullivan Lake Area and the Bow West Area. In the first mentioned it will be seen that the Government controls by far the greater portion. Only in the north-west corner is private ownership to any degree predominant. Similarly, in the north-west corner of the Berry Creek-Sullivan Lake Area, private ownership is in evidence, but the balance of the area is pretty well under Government control. The picture in the Bow West is somewhat different where a large area south of the railway is still in private hands.


Added to Special Areas O.C. 230/43
Sullivan Lake
RED DEER RIVER
UNPATENTED CROWN LAND
TITLE REVESTED IN CROWN
BERRY CREEK—
SULLIVAN LAKE
34
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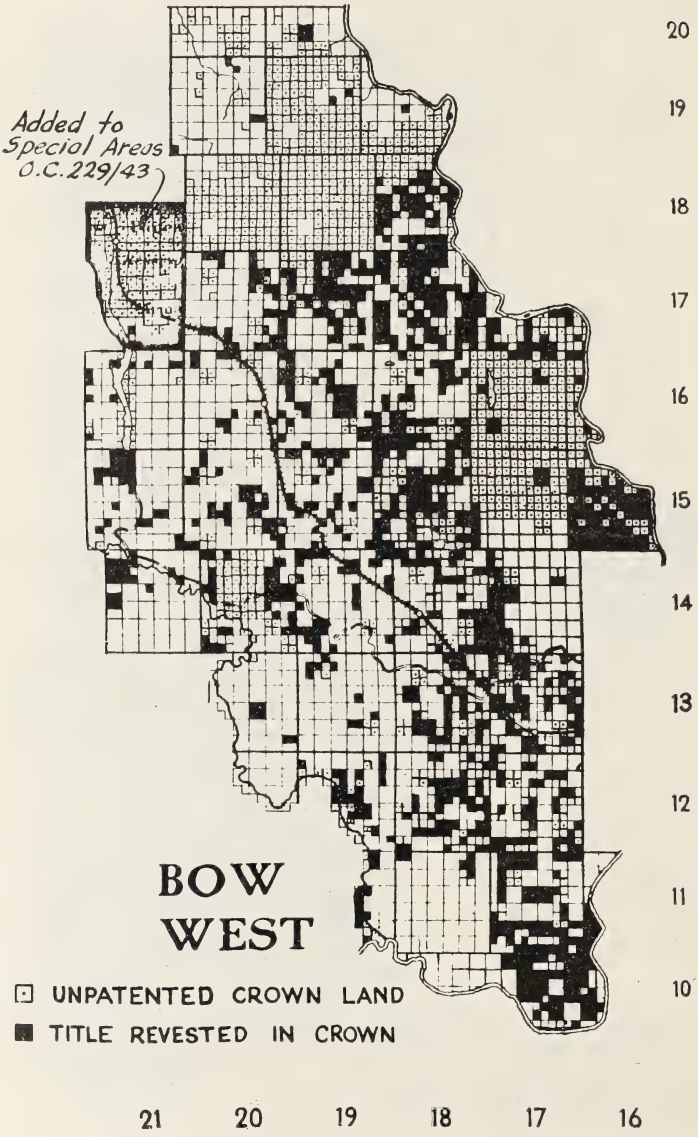
Added to
Special Areas
O.C. 229/43
BOW
WEST
UNPATENTED CROWN LAND
TITLE REVESTED IN CROWN
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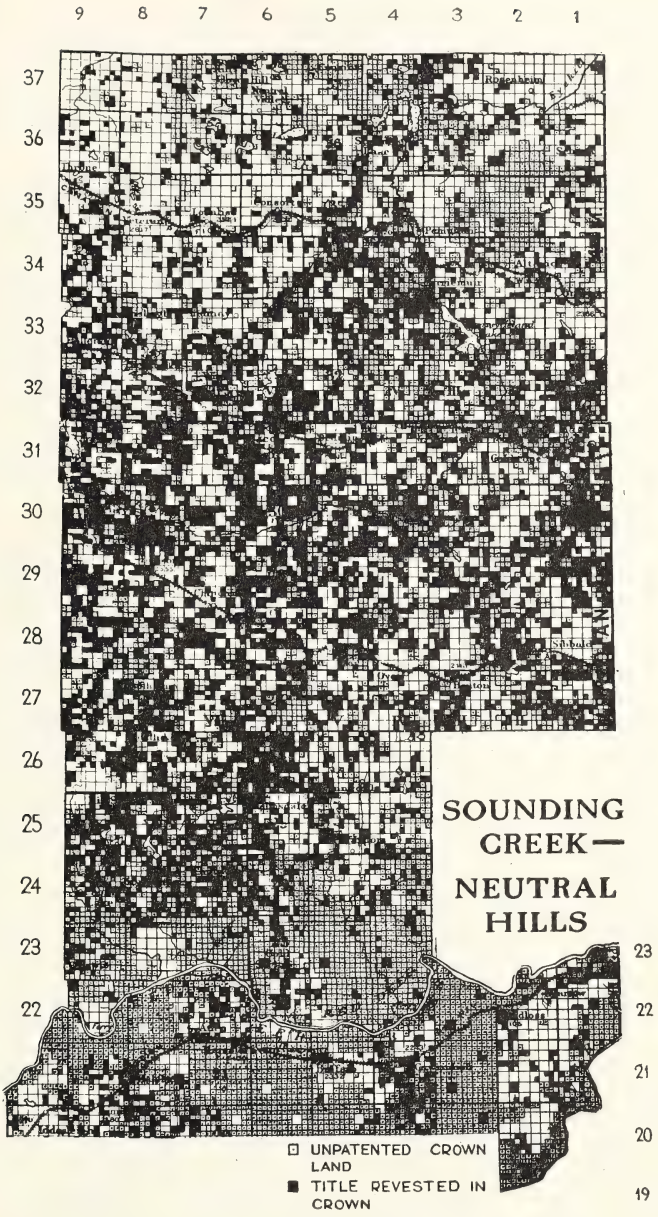
9 8 7 6 5 4 3 2 1
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22
SOUNDING CREEK—
NEUTRAL HILLS
23
22
21
20
19
UNPATENTED CROWN LAND
TITLE REVESTED IN CROWN

Additions to Special Areas.—On the 16th of February, 1943, there were two additional areas included within the boundaries of the Special Areas. By Order in Council, No. 229/43 the south half of township 18, range 21, west of the 4th meridian and that part of township 17, range 21, west of the 4th meridian lying east of the west boundary of MacGregor Lake were added to the Bow West Special Area, and by Order in Council, No. 230/43 dated the 16th day of February, 1943, all of townships 31, 32 and 33, in range 16, west of the 4th meridian were added to the Bow West Special Area.

Roadways.—There appears to be, due possibly to the war, a curtailment in the survey of road diversions, as shown by the number of plans of surveyed roadways that have been recorded in this Division, affecting available and alienated provincial Crown lands. The records show that seventy-one plans of roadways approved by the Director of Surveys of the Department of Public Works were recorded in this Division affecting a total of one hundred and eighty-nine parcels of land. Reservations for these roadways were entered in our records and in cases where lands were alienated by agreements for sale or lease, etc., assignments were obtained and compensation credited to the purchasers or lessees.

Air Landing Fields.—With the acceleration of aviation due to the war there has been a marked interest and demand for air landing fields throughout the province, not only on privately owned areas but also on provincial lands. Prior to the war, the records show that the following areas belonging to the Crown were put under reservation for aviation purposes:—

1. Grande Prairie.—Department of National Defence.
   On the 11th of June, 1929, by P.C. No. 978, the south-east quarter of section 29, township 71, range 6, west of the 6th meridian, was acquired by the Department of National Defence as an aeroplane landing field. This, of course, was previous to the transfer of the natural resources to the province.
2. Air Field at Fort Smith.—Department of the Interior.
   On the 1st of February, 1935, 200.50 acres, more or less, adjoining the Fort Smith Settlement were leased to the Department of the Interior at a nominal rental of $1.00.
3. Peace River Airport.—On December 3, 1936, the Board of Trade of Peace River was granted the use of the north-west quarter of section 29, township 83, range 22, west of the 5th meridian as an air landing field, on the understanding that these rights would not be assigned to private interests. This particular quarter section, which is classified as school land, was withdrawn from the School Land Endowment and another quarter section, the south-west quarter of section 7, township 70, range 22, west of the 5th meridian, was selected and reserved for school land in lieu thereof. The status of this field is not quite clear and the latest information shows that the Board of Trade of Peace River passed a resolution and, by a letter to the Department on the 21st of December, 1936, requested that the Town Council take possession so that this field could be managed and run as a public airport.
4. Lac La Biche Air Landing Field.—An application was received from a group at Lac La Biche and in reply advice was given that the Municipality or Community would be granted land for an airport under certain conditions, but no further action was taken by the applicants.
5. Coleman.—Intermediate Air Landing Field.—Due to representations made by the Department of National Defence, an Order in Council, No. 1402/35 was passed reserving, during pleasure, for the purpose of an intermediate landing field, all that portion of the south-east quarter of section 11 and the easterly 1,600 feet of the south-west quarter of section 11, township 8, range 5, west of the 5th meridian, lying to the south of the right of way of the Crowsnest Branch of the Canadian Pacific Railway, containing 104.68 acres, more or less.

The above appears to cover all the activity regarding air landing fields on Crown lands previous to the war, but since the outbreak of hostilities the following information is submitted to show that there is a great demand for such fields in this province. In looking to the rapid advancement and development in aviation travel after the war, it does not need much imagination to show that Alberta will be dotted with numerous air landing fields of which Edmonton, our

capital city, already acknowledged as one of the main aviation cross-roads of international aviation travel, will be the geographical and commercial centre.

1. Air Landing Field at McMurray.—The Canadian Pacific Airlines are pioneering aviation and blazing trails which are radiating through this province. An application is under consideration to construct for aircraft two landing runways, 7,000 feet long and 750 feet wide, in the vicinity of the settlement of Fort McMurray, and which will affect the south-east quarter of section 29, the south half of section 28, the north-east quarter of section 20, and all of section 21, in township 88, range 8, west of the 4th meridian.
2. Embarass Portage.—Permission was given the Canadian Pacific Airlines to construct runways for an air landing field ten miles south of Embarass Portage on the right bank of the Athabaska River in township 106, range 9, west of the 4th meridian. The application claimed that this field was necessary for the Canadian Pacific Airlines to carry freight, supplies and personnel in connection with the development of the Fort Norman Oil Wells and the war project of a pipeline from this point to Whitehorse. The representative of the Canadian Pacific Airlines advises that this field appears to have been taken over completely by the Government of the United States of America, but no application has been received from this government although runways have been graded and are in use by its representatives.
3. High River.—Permission has been granted to the Chief Works Officer of No. 4 Training Command to enter upon the west half of section 30, township 18, range 27, west of the 4th meridian and the east half of section 25, township 18, range 28, west of the 4th meridian, for the purpose of using same as a temporary relief field. It is the obligation of this Command to advise when such use of these lands has been relinquished, so that the reservation may be deleted from our records.
4. Eagle Lake Air Firing Range.—All those portions of sections 28, 29, 30, 31, 32 and 33, in township 23, range 24, west of the 4th meridian, and that portion of section 5, township 24, range 24, west of the 4th meridian, covered by the waters of Eagle Lake, have been put under reservation for the Dominion Department of Transport.
5. R.C.A.F. Field at Whitla.—Representations have been made for the reservation of an outer marker and access thereto in section 13, township 12, range 8, west of the 4th meridian, in connection with the above airfield. An application is also on file in connection with this station for a portion of the south-west quarter of section 14 and the north-west quarter of section 11, township 12, range 8, west of the 4th meridian, adjoining the already established field at this location.
6. Air Field West of Redcliff.—An application has been received on behalf of the Department of Transport to reserve the north-west quarter of section 17, township 13, range 7, west of the 4th meridian, as a bombing area in connection with the balance of this section, which is held by private interests.
7. Wainwright.—The Department of Transport has made application to acquire for an air landing field the north-east quarter of section 29, and the east half of the north-west quarter of section 29, in township 44, range 6, west of the 4th meridian, north of the Canadian National Railways' right of way at Wainwright.

Reservations have been entered in the records affecting these lands subject, however, to the Department of Transport obtaining releases of a six year cultivation and grazing lease and a grazing permit affecting portions of the above described lands and the payment, if necessary, of any compensation as is thought necessary and equitable.

Maps and Plans.—Some years ago, at the request of the Minister, a start was made on a map of the province showing the general standing of the lands, so that a bird's-eye view may be obtained of their disposition in any section. This information is shown upon sectional sheet maps, which are mounted on linen and bound in two volumes. The scale of these maps is three miles to the inch, which will not of course permit of showing the disposition of the lands in the minutest detail but sufficiently so in order to indicate the following classifications:—

Patented lands (except small areas such as school sites, church sites, etc.),
Homesteads,
Pre-emptions,
Soldier grants,
Sales,
Grazing leases,
Agricultural leases,
Cultivation leases,
Accrued area leases,
Fur farm leases,
Surface leases,
Miscellaneous leases,
Vacant provincial lands,
Licences of occupation,
Timber berths,
Timber reservations,
Bird sanctuaries,
Forest reserves,
Metis reserves.

The value of showing this information in map form has been realized on many different occasions even before the draughting was completed. Due to the depletion of the staff through enlistments hope of ever completing this map was almost abandoned and for some time it was not possible to make any progress whatsoever. Then came the advent of the lady draughtsmen. Without in any way minimizing the fine work of the men whose places they had taken, it must be admitted that the completion of this map was in a great measure due to the unlimited patience, constant application and tenacity of this new product of the war, the lady draughtsman. To this particular employee we wish to extend our appreciation, particularly so at a time when there is additional pressure upon all available help. Now that the map is completed, all documents coming under the above classifications are routed through to this map where new dispositions are placed upon it and cancellations and changes from one classification to another are shown thereon.

Trap-Line Maps.—Another new set of records has been completed, also upon mounted sectional sheet maps, showing all the trap-lines for which licences have been issued by the Fish and Game Branch. As soon as an application is received it is plotted upon the map in order to ascertain if it in any way conflicts with a previous licensed area. Through these records many disputes are averted, and a glance at the map will show the exact area covered by each trapper's licence.

35 *Mile Map of the Province.*—Our supply of this map is almost exhausted. It is now being revised and brought up to date, after which it is the intention to make arrangements with Ottawa to lithograph a new issue.

Dominion Maps.—This Division has at all times worked in close co-operation with the Hydrographic and Map Service Division at Ottawa, and from time to time when Dominion publications are being issued affecting the Alberta area, advance copies of the maps are sent to us in order that they may be checked over. Wherever necessary, corrections are made.

In some instances suggestions are also offered in order to make the map as complete as possible, particularly so with the national topographic series, which are in considerable demand and greatly used by aviators belonging to the armed forces, as well as by civilian corporations. Winter trails or wagon roads, forestry look-out towers or rangers' cabins with radio or telephone communications may mean to these aviators the saving of lives in a wrecked plane, and great care is exercised so that none of these essential land marks are omitted from the plans.

The following plans were checked and returned to Ottawa for publication:

McMurray	Sheet No. 74 S.W.,
Lac La Biche-Peter Pond	Sheet No. 73 N.W.,
Peace River	Sheet No. 84 S.W.

Maps in General.—From time to time new map publications are being added to our varied supply of maps, which has resulted in our now possessing the largest and most comprehensive stock of maps in the province. It is particularly gratifying to be able to continue serving not only the general public over the counter and to far away points through the mail, but, also, all the armed forces, including the American engineers and contractors, who have many times expressed their appreciation for this service and have remarked on the excellence of the maps. The greatest volume during the year has been disposed of over the counter, and 3,024 maps have been sent out by mail.

Draughting.—A considerable number of plans and sketches were made in connection with various applications to acquire the resources by purchase, lease or otherwise. Many large plans of the grazing areas of the province were draughted in order that adjustments could be made to ascertain boundaries to the best advantage of all concerned. The usual general draughting was taken care of for the different divisions, including plans showing the "radio set-up".

One of these plans shows in a very concise and interesting way the different types of forest radio communications. A base map of the province was used giving all the radio headquarter stations, look-out stations, mobile stations, portable stations, look-outs equipped with telephone and radio, rangers' stations, boundaries of the ranger districts and also the location of the telephone lines. In addition the power in kilocycles of each station was shown by means of different colours. This plan was especially prepared for the Royal Canadian Air Force for the purpose of assisting that organization in the spotting of planes.

Photostat Machine.—Even last year's record was exceeded in the amount of work that was turned out by this machine. Fifty-eight rolls of photostat paper were used this year in comparison with fifty-one during last year, making a total of 20,300 feet of photostat copies. This represents a great volume not only of plans but other material as well. Interesting items included a complete copy in duplicate of the evidence in the McGillivray Creek and Coal Company explosion in 1926, each copy consisting of four hundred and seven pages. A number of certified copies were made of the material and exhibits for the courts in the action of William Antony et al versus the Attorney General and the Minister of Lands and Mines. A great amount of photostat work was also done relative to other actions in the administration of the Department, and complete sets of timber regulations for the province and Dominion went through the machine. In addition to the above work and our own general departmental requirements, considerable work was done for other Government departments, which were briefly as follows:—

Applications for insurance were photostated on a reduced scale for the Alberta Government Insurance Office.

Copies of the lists showing the Pressure Vessel Registration paid for the Mechanical Branch of the Department of Public Works.

Photostat prints on a large scale of the enlarged municipal districts for the Department of Municipal Affairs.

Miscellaneous photostats for the Publicity Bureau, Department of Trade and Industry.

In accordance with our policy, assistance was rendered in certain cases to the Armed Forces, particularly to the No. 4 Initial Training School.

Recordak Machine.—A real start was made during the year with this machine whereby records are preserved on films. A large number of old township registers received from Ottawa had been stored in the basement. These registers, whilst containing a great deal of valuable information, occupied a large amount of space. Most of these have been photographed, recorded on film, indexed and stored away for safe keeping in a space a mere fraction of the area that was occupied by the old records. At the close of the year the Recordak machine was photographing files belonging to the Mining Lands Division. As time goes by all old files will be recordaked and preserved on film, thus affording relief from the congestion of storing thousands of files which accumulate from year to year.

Mimeograph Machine.—A total of 381 stencils were cut this year and 196,944 copies were run off. This work included four hundred copies of the thirty-four page report by Mr. Justice A. F. Ewing, Commissioner, covering the disaster which occurred at the mine of the Brazeau Collieries, Limited, at Nordegg, Alberta.

Mineral Taxation.—Reference was made last year to the fact that the Mineral Taxation Act, 1941, had been placed in this Division for administration. Since the passing of this Act, which provides a good foundation for mineral taxation, it is apparent from the experience of the last two years that many revisions are

needed, which it is hoped will be taken care of at the forthcoming session. The Act provides for the collection of taxes in producing and non-producing areas. At the present time only one producing area is established at Turner Valley.

The Act seems adequate as far as this area is concerned and others which, from time to time, may be designated by ministerial order as producing, but the main weakness in the Act is the provision in Section 15 wherein every owner of minerals shall deliver to the Minister a statement of the parcels in respect of which he is taxable under the Act, and shall pay before a certain date the taxes due by him. No assessment notices are sent out as in cases of the producing area, the section placing the responsibility squarely upon the owner to send in the tax without any assessment or notification whatsoever from this Department. It is true that advertisements have appeared in the leading newspapers of the province, but it is nevertheless apparent that there are a large number of mineral owners who have no knowledge of the existence of this Act. The Department, unfortunately, has not a record of all the mineral owners, and until the Land Titles Office records are searched and this information extracted and compiled it is not possible to effectively and efficiently collect the taxes. To search all the Land Titles Office records to obtain this information is indeed no small task, but it is respectfully contended that for the proper administration of any Mineral Taxation Act and the collection of mineral taxes, complete records should be obtained of all mineral owners, similar to the records of surface rights that are maintained by all taxing authorities.

For the fiscal year ending 1942, $75,120.93, and for the fiscal year ending 1943, $94,364.68 were collected under this Act.

Accounting Division

REPORT OF THE ACTING ACCOUNTANT, E. R. EDWARDS

During the year ending March 31st, 1943, there was a surplus of $1,946,210.59 on income account, an increase of $200,280.77 over the previous year. The total cash received from all sources during this fiscal year was $3,920,989.65 as shown in Statement "A".

The main increases in revenue were shown by the Mining Lands Branch, $142,693.43, the Timber Branch, $41,993.30, and the Special Areas Branch, $29,359.93. A decrease, however, was recorded by the School Lands Branch of $56,444.77, due to a drop in petroleum and natural gas royalties of $33,933.36, and timber permits, fees, dues, etc., of $17,425.71. An examination of statement "H" will show the details of increases and decreases in all branches. It will be noted from Statement "B" that the net revenue on Income Account for the year was $2,753,159.00, an increase of $159,673.86.

The total expenditure on income account amounted to $806,948.41, a decrease of $40,606.91. This was due to the sharp fall of $124,752.43 in fire-fighting expenses which was partly offset by a general increase in salary schedules together with added employment for forest rangers amounting to $64,496.16, and to an increase of $15,730.50 for radio protection service.

Combined collections from Special Areas and Special Districts amounted to $543,062.32. Tax collections declined $50,404.17 and Agricultural Relief Advance collections, $30,822.98. This was partially offset by the previously mentioned increase in Special Areas collections of $29,359.93, leaving a net decrease of $50,948.14. The combined expenditures for this year's operations were $306,731.81 and were all paid from funds in the Special Areas and Special Districts Trust Accounts. Details will be found in statements "E", "F", and "G".

Space does not permit a detailed summary of the work performed by this Division, nor are records available to show the vast number of files handled or the large volume of accounting information supplied to the various branches of the Department. The following items, however, will give some indication of the volume of certain portions of the work performed during the year under review.

Over 52,000 individual receipts, issued by various offices of the Department, were audited and analysed for revenue classification. Of this number, 25,826 were issued and mailed by the Accounts Division.

There were 3,120 new accounts opened, 200 School Lands Sales accounts reinstated and 4,063 accounts cancelled, bringing the total of active accounts as at March 31st, 1943 to 39,699.

Over 100,000 entries were posted on the bookkeeping machines to the various accounts concerned, calculations were made and billing or tax notices mailed for 28,000 accounts, and 3,700 refund requisitions were examined, approved and the necessary cheques issued.

The head office cashiers recorded over 37,500 individual cash items, posted over 37,000 official receipts, issued 950 interim receipts, and sent out 3,000 cheques for certification.

It should be emphasized that the above information is presented only as an indication of the great number of entries which were made due to the enormous increase in volume of cash receipts being handled.

Index to Statements

A.—Statement of Receipts from All Sources.
B.—Statement of Receipts Income Account.
C.—Statement of Receipts Capital Account.
D.—Statement of Receipts and Disposition of Agricultural Advances.
E.—Special Areas Trust Account Statement of Receipts and Payments.
F.—Special Districts Trust Account Statement of Receipts and Payments.
G.—Statement of Receipts, Special Area and Special District.
H.—Statement of Receipts, by Branches.
I.—Statement of Receipts, School Lands Branch.
J.—Alberta School Lands Trust Fund Balance Sheet.
K.—Alberta School Lands Sales Revenue Account.
L.—Composite Statement of Income from Alberta School Lands Sales.
M.—Statement of Collections on Tax Recovvery Lands.

STATEMENT A.

STATEMENT OF RECEIPTS FROM ALL SOURCES

From April 1, 1942 to March 31, 1943

	Gross Receipts	Refunds	Net Revenue
Income Account	$2,808,600.27	$ 55,708.01	$2,752,892.26
Capital Account	11,160.94	60.00	11,100.94
Reimbursement of previous year's expenditures	200.00	.....	200.00
School Lands Trust Fund	145,668.95	327.24	145,341.71
Special Areas and Special Districts	550,429.31	7,366.99	543,062.32
Unapplied receipts	301,710.97	199,442.45	102,268.52
Tax Recovery	74,401.53	223.63	74,177.90
Improvements	3,835.26	1,504.11	2,331.15
Land patents cultivation crop shares	1,944.24	.....	1,944.24
School lands cultivation crop shares	17,332.52	.....	17,332.52
Grazing permits, fees, rentals, etc.	5,705.66	.....	5,705.66
	$3,920,989.65	$264,632.43	$3,656,357.22

STATEMENT B.

STATEMENT OF RECEIPTS—INCOME ACCOUNT

From April 1, 1942 to March 31, 1943

INCOME ACCOUNT:	Gross Receipts	Refunds	Net Revenue
Fisheries:			
Casual	$ 1,294.05	$ 16.66	$ 1,277.39
Fishing licences	9,261.00	25.00	9,236.00
Angling permits	12,775.73	1,333.63	11,442.10
Boat licences	20.00	.....	20.00
Game Branch:			
Casual	1,005.40	.....	1,005.40
Game licences	67,071.63	4,761.39	62,310.24
Trap line permits	10,097.40	.....	10,097.40
Fur tax	84,453.73	3,268.46	81,185.27
Sale of fur	2,682.68	.....	2,682.68
Lands and Grazing Branch:			
Casual	12,817.61	75.90	12,741.71
Grazing permits, fees, dues, etc.	137,849.34	12,389.09	125,460.25
Hay permits, fees, dues, etc.	5,508.15	567.46	4,940.69
Agricultural fees, rentals, etc.	1,144.10	215.00	929.10
Improvement collection fees	755.62	15.00	740.62
General sales interest	2,456.72	.....	2,456.72
Cultivation permits, fees, rentals, etc.	12,887.14	2,588.03	10,299.11
Surface rentals	4,010.98	202.27	3,808.71
Timber Branch:			
Casual	8,097.13	2.00	8,095.13
Timber fees, dues, rentals, etc.	771,072.37	4,994.80	766,077.57
Mining Lands Branch:			
Casual	53,613.65	1,192.35	52,421.30
Coal fees, rentals, etc.	80,147.23	405.00	79,742.23
Coal royalties	235,628.24	15.05	235,613.19
Coal Mines Act sundry revenue	4,609.62	54.00	4,555.62
Petroleum and natural gas fees, rentals, etc.	271,551.63	3,939.16	267,612.47
Petroleum and natural gas royalties	575,833.12	.....	575,833.12
Mineral Tax	94,430.18	65.50	94,364.68
School Lands Branch:			
Interest on sales	86,241.60	296.53	85,945.07
Miscellaneous	244,833.02	19,165.99	225,667.03
Miscellaneous:			
Casual	11,846.76	74.16	11,772.60
Services and supplies	3,067.37	25.58	3,041.79
Reimbursement of salaries and expenses	901.07	.....	901.07
Tax recovery office fees	636.00	20.00	616.00
Total (carried to StatementA)	$2,808,600.27	$ 55,708.01	$2,752,892.26
Special Districts (carried to Statement D):			
1936 seed grain interest	102.21	.....	102.21
1939 agricultural advances interest	29.19	.....	29.19
1937-38 feed and fodder interest	93.57	.....	93.57
1938-39 feed and fodder interest	41.77	.....	41.77
TOTAL INCOME ACCOUNT	$2,808,867.01	$ 55,708.01	$2,753,159.00

STATEMENT C.

STATEMENT OF RECEIPTS—CAPITAL ACCOUNT

From April 1, 1942 to March 31, 1943

	Gross Receipts	Refunds	Net Revenue
Land sales principal	$ 11,160.94	$ 60.00	$ 11,100.94

STATEMENT D.

STATEMENT OF RECEIPTS AND DISPOSITION OF AGRICULTURAL ADVANCES

From April 1, 1942 to March 31, 1943

Receipts:			
Gross receipts			$ 5,012.78
Refunds			.....
Net to Statement G			$ 5,012.78

Disposition:	Principal	Interest	
1937 seed grain	$ 892.64	$ 286.74	To Provincial Treasurer
1936 seed grain	226.95	102.21	To Provincial Treasurer
1939 agricultural advances	136.60	29.19	To Provincial Treasurer
1937-38 feed and fodder	433.16	93.57	To Provincial Treasurer
1938-39 feed and fodder	272.69	41.77	To Provincial Treasurer
1938 agricultural advances	2,063.98	433.28	To be forwarded to Provincial Treasurer
	$ 4,026.02	$ 986.76	
			$ 4,026.02
			986.76
			$ 5,012.78

STATEMENT E.

STATEMENT OF RECEIPTS AND PAYMENTS
SPECIAL AREAS TRUST ACCOUNT
For the Year Ended March 31, 1943

Cash in bank, March 31, 1942		$ 131,953.76
Receipts:		
Grazing rentals	$ 69,796.81	
Cultivation rentals	56,250.06	
Sale of buildings	13,307.45	
Bank interest	1,762.27	
Equipment rentals—1942	19,036.81	
Province of Alberta, equipment grant	10,000.00	
Reimbursement of Special District items charged to Special Areas Trust during the year ending March 31, 1942	687.24	
Miscellaneous	3,030.12	
		173,870.76
		$ 305,824.52
Payments:		
Purchase of equipment	$ 10,122.13	
Equipment maintenance	14,391.92	
Community pastures	8,834.06	
Purchase of accounting machines	3,984.61	
Special Districts items charged to Special Areas Trust Account	1,478.80	
Grass seed	801.00	
Miscellaneous	924.65	
		40,537.17
Cash in bank, March 31, 1943		$ 265,287.35

STATEMENT F.

STATEMENT OF RECEIPTS AND PAYMENTS
SPECIAL DISTRICTS TRUST ACCOUNT
For the Year Ended March 31, 1943

Cash in bank, March 31, 1942		$ 164,003.21
Receipts:		
General tax collections	$ 319,715.64	
Bank interest	595.67	
Reimbursement of Special Areas items charged to Special Districts Trust during the year ending March 31, 1942	442.20	
Miscellaneous	3,901.64	
		324,655.15
		$ 488,658.36
Payments:		
School requisitions—1942	$ 143,967.48	
School requisitions—1943	4,920.96	
Hospital requisitions—1942	19,298.82	
Hospital requisitions (arrears)	25,000.00	
Maintenance of roads	36,507.38	
Blind pensions—1941	109.18	
Blind pensions—1942	145.68	
Direct relief	660.92	
Hospital medical and indigent relief	1,762.04	
Isolation hospital costs	15.97	
Mothers' Allowances	4,864.99	
Old age pensions—1940	92.00	
Old age pensions—1941	7,791.53	
Old age pensions—1942	7,619.27	
Provincial Mental Hospital	930.00	
Provincial Training School	495.00	
Land Titles office fees	2,827.50	
Pests and weeds	1,051.00	
Maintenance of offices	880.59	
Liquidation of debentures of former School Districts in Special Areas	3,377.33	
Special Areas items charged to Special Districts Trust Account	2,876.55	
Miscellaneous	1,000.45	
		266,194.64
Cash in bank, March 31, 1943		$ 222,463.72

STATEMENT G.

STATEMENT OF RECEIPTS
SPECIAL AREAS AND SPECIAL DISTRICTS
From April 1, 1942 to March 31, 1943

		Gross Receipts	Refunds	Net Revenue
TAXES:				
General Tax—Statement F		$325,448.19	$ 5,732.55	$319,715.64
Social Service Tax		45,235.28	19.23	45,216.05
Reporting School Tax		4,682.37	.....	4,682.37
Refunded to School Districts	$ 4,448.19			
5% commission to Special Districts Trust Account	234.19			
Total collections	$ 4,682.37			
Hail Tax		7,975.23	.....	7,975.23
Refunded to Hail Board	$ 7,576.47			
5% commission to Special Districts Trust Account	398.76			
Total collections	$ 7,975.23			
TOTAL TAX COLLECTIONS		$383,341.07	$ 5,751.78	$377,589.29
Special Districts bank interest, Statement F		595.67	.....	595.67
Special Districts, miscellaneous, Statement F		3,268:69	.....	3,268.69
Statement F	$ 3,901.64			
Less: Reporting schools commissions	234.19			
Less: Hail tax commissions	398.76			
	$ 3,268.69			
Special Areas Trust Receipts		145,761.92	1,615.21	144,146.71
Statement E	$173,870.76			
Less: Equipment rentals 1942	19,036.81			
Less: Province of Alberta Equipment Grant	10,000.00			
Less: Recoverable advances	687.24			
	$144,146.71			
Agricultural Advances, Statement D		5,012.78	.....	5,012.78
1938 agricultural advances, forwarded from previous year		12,393.68	.....	12,393.68
Collections for Department of Agriculture:				
Horse vaccine		33.00	.....	33.00
Bran and sawdust		22.50	.....	22.50
		$550,429.31	$ 7,366.99	$543,062.32

STATEMENT H.

STATEMENT OF RECEIPTS BY BRANCHES
For Fiscal Years Ending March 31, 1942 and March 31, 1943

	Fiscal year ending March 31, 1942	Fiscal year ending March 31, 1943
INCOME ACCOUNT:		
Fisheries Branch	$ 22,298.59	$ 21,975.49
Game Branch	161,122.17	157,280.99
Lands and Grazing Branch	145,981.43	161,376.91
Timber Branch	732,179.40	774,172.70
Mining Lands Branch	1,073,084.50	1,215,777.93
Mineral Tax	75,120.93	94,364.68
School Lands Branch	368,056.87	311,612.10
Miscellaneous	15,066.17	16,331.46
CAPITAL ACCOUNT:		
Land sales principal	10,416.91	11,100.94
TRANSFERRED TO OTHER DEPARTMENTS	7.36	200.00
SCHOOL LANDS TRUST FUND	127,874.26	145,341.71
SPECIAL AREAS AND SPECIAL DISTRICTS:		
Taxes	427,993.46	377,589.29
Funds transferred from Municipal Districts bank accounts	8,155.47	.....
Special Districts bank interest	530.30	595.67
Special Districts miscellaneous	6,616.09	3,268.69
Special Areas receipts	114,786.78	144,146.71
Agricultural advances	35,835.76	5,012.78
1938 agricultural advances forward from previous year	.....	12,393.68
Horse vaccine	71.00	33.00
Bran and sawdust	21.60	22.50
UNAPPLIED RECEIPTS CARRIED FORWARD:		
Suspense	129,304.20	176,446.42
Improvements	2,215.67	2,331.15
Land patents cultivation crop share	754.02	1,944.24
School lands cultivation crop share	6,767.34	17,332.52
Grazing permits, fees, rentals, etc.	4,181.14	5,705.66
	$3,468,441.42	$3,656,357.22

STATEMENT I.

STATEMENT OF RECEIPTS
SCHOOL LANDS BRANCH
April 1, 1942 to March 31, 1943

	Receipts	Refunds	Net Revenue
INCOME ACCOUNT:			
Sales: interest	$ 86,241.60	$ 296.53	$ 85,945.07
Grazing fees, rentals, etc.	18,299.83	48.79	18,251.04
Hay fees, dues, etc.	743.95	98.50	645.45
Cultivation fees, rentals, etc.	74,416.55	18,474.59	55,941.96
Surface rights	355.49	.....	355.49
Miscellaneous leases	461.49	.....	461.49
Timber permits, fees, dues, etc.	41,510.33	489.91	41,020.42
Coal fees, rentals, etc.	4,288.14	.....	4,288.14
Coal royalty	24,700.43	.....	24,700.43
Petroleum and natural gas fees, rentals, etc.	24,074.36	9.20	24,065.16
Petroleum and natural gas royalties	54,360.45	.....	54,360.45
Miscellaneous	1,622.00	45.00	1,577.00
	$ 331,074.62	$ 19,462.52	$ 311,612.10
TRUST ACCOUNT:			
School lands sales principal	145,668.95	327.24	145,341.71
	$ 476,743.57	$ 19,789.76	$ 456,953.81

STATEMENT J.

ALBERTA SCHOOL LANDS TRUST FUND
BALANCE SHEET—MARCH 31, 1943

ASSETS

Cash in bank and on hand		$ 40,089.04	
Investments:			
Dominion of Canada debentures	$10,480,175.03		
Accrued interest	267.53		
		10,480,442.56	
Accounts receivable:			
Undue principal	609,626.74		
Arrears principal	767,198.78		
		1,376,825.52	
Due by Provincial Treasurer re adjustments		49.87	
			$11,897,406.99

LIABILITIES

Alberta School Lands Trust Fund	$11,897,406.99

STATEMENT K.

ALBERTA SCHOOL LANDS SALES
REVENUE ACCOUNT
April 1, 1942 to March 31, 1943

Arrears interest as at March 31, 1942	$ 418,495.00	
Interest charges	343,643.86	
Interest on reinstated accounts	200,762.27	
Interest revenue		$ 85,945.07
Interest on cancelled sales written off		77,256.22
Amounts transferred from cultivation leases held on reinstated sales		67,366.65
Interest reductions granted by School Lands Board		383,675.54
Arrears interest as at March 31, 1943		348,657.65
	$ 962,901.13	$ 962,901.13

ALBERTA SCHOOL LANDS

STATEMENT L.

STATEMENT OF NET RECEIPTS AND ADMINISTRATION CHARGES
ALSO INCOME PAID TO THE PROVINCE FROM SEPTEMBER 1, 1905 TO MARCH 31, 1943

	Principal on Sales Cr. to School Lands Trust Fund	REVENUE RECEIPTS			Total Management Charges	Net Revenue	Interest on Fund	Total Income Paid to Province
		Interest on Sales	Miscellaneous Revenue	Total Revenue Received				
Prior to Sept. 1, 1905	$ 44,758.58	.....	.....	.....	.....	.....	.....	.....
1905-06	170,948.16	$ 249.29	$ 8,237.18	$ 8,486.47	$ 10,099.41	.....	$ 3,008.44	$ 3,008.44
1906-07	83,266.66	47,373.75	9,383.26	56,757.01	4,908.19	50,235.88	8,615.56	58,851.44
1907-08	70,790.03	35,881.70	15,977.04	51,858.74	8,224.81	43,633.93	7,776.61	51,410.54
1908-09	82,359.96	45,941.50	15,138.94	61,080.44	6,840.60	54,239.84	12,790.09	67,029.93
1909-10	401,495.74	55,726.21	35,408.41	91,134.62	12,667.92	78,466.70	20,415.16	98,881.86
1910-11	438,395.79	110,370.52	33,310.80	143,681.32	12,374.65	131,306.67	34,749.52	166,056.19
1911-12	478,388.71	161,780.73	32,859.86	194,640.59	9,390.83	185,249.76	50,797.04	236,046.80
1912-13	318,505.57	130,519.25	43,356.48	173,875.73	11,159.66	162,716.07	60,896.23	223,612.30
1913-14	273,429.52	105,934.34	55,543.60	161,477.94	11,183.89	150,294.05	69,414.50	219,708.55
1914-15	158,258.08	64,298.94	130,504.27	194,803.21	12,325.40	182,477.81	76,435.88	258,913.69
1915-16	110,182.73	58,683.74	43,417.84	102,101.58	11,029.13	91,072.45	78,154.28	169,226.73
1916-17	468,442.48	132,898.38	45,555.20	178,453.58	16,239.05	162,214.53	86,550.43	248,764.96
1917-18	731,207.52	228,213.40	82,938.44	311,151.84	16,898.03	294,253.81	167,625.11	461,878.92
1918-19	927,628.90	297,976.38	76,840.71	374,817.09	25,124.71	349,692.38	210,093.85	559,786.23
1919-20	573,131.11	291,479.93	153,219.76	444,699.69	26,245.71	418,453.98	244,559.75	663,013.73
1920-21	827,956.84	222,229.46	154,536.93	376,766.39	38,504.76	338,261.63	281,564.21	619,825.84
1921-22	311,905.56	184,159.90	106,623.07	290,782.97	34,633.36	256,149.61	317,239.50	573,389.11
1922-23	175,292.64	135,491.55	83,462.92	218,954.47	32,601.57	186,352.90	329,300.48	515,653.38
1923-24	234,835.94	161,703.16	112,268.17	273,971.33	30,847.06	243,124.27	339,692.46	582,816.73
1924-25	290,192.78	180,348.22	83,778.64	264,126.86	32,134.36	231,992.50	354,051.86	586,044.36
1925-26	318,102.28	243,423.62	120,195.52	363,619.14	26,012.57	337,606.57	369,009.79	706,616.36
1926-27	277,362.57	170,221.36	113,064.11	283,285.47	25,555.80	257,729.67	384,910.51	642,640.18
1927-28	511,807.46	212,817.04	114,069.33	326,886.37	38,563.64	288,322.73	400,856.19	689,178.92
1928-29	845,890.67	264,547.38	100,796.15	365,343.53	50,030.78	315,312.75	439,902.57	755,215.32
1929-30	376,286.40	272,012.74	163,915.17	435,927.91	37,086.69	398,841.22	472,317.57	871,158.79
April 1 to Oct. 30, 1930	63,746.52	32,544.91	47,706.61	80,251.52	12,825.67	67,425.85	242,656.26	310,082.11
Total receipts anad disbursements while under Dominion Administration	$ 9,564,569.20	$ 3,846,827.40	$ 1,982,108.41	$ 5,828,935.81	$ 553,508.25	$ 5,275,427.56	$ 5,063,383.85	$10,338,811.41
October 1 to March 31, 1931	33,406.73	40,983.63	38,479.33	79,462.96	.....	79,462.96	237,500.00	316,962.96
1931-32	43,947.85	58,851.60	60,863.51	119,715.11	25,000.00	94,715.11	357,864.23	452,579.34
1932-33	40,035.81	162,826.68	52,501.13	215,327.81	40,000.00	175,327.81	482,393.77	657,721.58
1933-34	56,136.23	90,759.77	77,811.94	168,571.71	40,000.00	128,571.71	483,952.73	612,524.44
1934-35	80,129.68	180,505.58	147,281.78	327,787.36	40,000.00	287,787.36	486,492.26	774,279.62
1935-36	76,867.12	67,190.45	124,396.74	191,587.19	40,000.00	151,587.19	489,289.15	640,876.34
1936-37	55,779.89	66,239.82	227,523.66	293,763.48	40,000.00	253,763.48	444,476.18	698,239.66
1937-38	48,442.09	41,751.06	192,276.55	234,027.61	40,000.00	194,027.61	398,824.14	592,851.75
1938-39	86,355.82	58,129.04	300,068.07	358,197.11	40,000.00	318,197.11	401,115.57	719,312.68
1939-40	83,664.73	75,331.78	296,294.81	371,626.59	40,000.00	331,626.59	401,850.64	733,477.23
1940-41	76,957.88	70,406.67	267,371.14	337,777.81	40,000.00	297,777.81	406,969.99	704,747.80
1941-42	127,874.26	98,872.84	269,184.03	368,056.87	40,000.00	328,056.87	407,683.94	735,740.81
1942-43	145,341.71	85,945.07	225,667.03	311,612.10	40,000.00	271,612.10	412,273.56	683,885.66
	$10,519,509.00	$ 4,944,621.39	$ 4,261,828.13	$ 9,206,449.52	$ 1,018,508.25	$ 8,187,941.27	$10,474,070.01	$18,662,011.28

STATEMENT M.

STATEMENT OF COLLECTIONS ON TAX RECOVERY LANDS

April 1, 1942 to March 31, 1943

Grazing permits	$ 2,217.68
Grazing rentals	4,317.05
Sales principal	1,254.16
Sales interest	1,376.24
Cultivation permits	120.50
Cultivation bonus	50.00
Cultivation rentals	1,431.88
Wheat acreage bonus	1,613.38
Cultivation crop shares	7,554.51
Mineral surface rentals	33.93
Miscellaneous leases	67.82
Miscellaneous use permits	5.00
Miscellaneous sale of improvements	282.00
Sundry revenue	67.87
	$ 20,391.12
Tax recovery office fees	616.00
	$ 21,007.12

Special Areas Administration

REPORT OF SPECIAL AREAS BOARD, A. C. McCULLY, *Chairman*

During the fiscal year ending March 31st, 1943, the following business was transacted:—1,445 provincial lands grazing permits, covering 715,300 acres; 499 school lands grazing permits, covering 183,608 acres; 854 provincial lands cultivation permits, covering 168,497 acres of broken and 71,334 acres of unbroken land and 111 hay permits, giving authority to cut 1,116 tons of hay. Revenue derived from these sources may be found elsewhere in this report in the Statement of Receipts, Special Areas Trust Account.

Owing to the resignation of one member of the Board, in addition to the prevailing shortage of help, the preparation of long term leases was somewhat curtailed. In spite of this problem, however, 263 applications for grazing leases were prepared and forwarded to the Department with the Board's recommendation, together with 257 applications for six and twenty year cultivation leases, making a total to date of 580 grazing and 369 cultivation leases.

Special mention should be given of the 20 year cultivation lease which is being issued under authority of Order in Council, No. 890-41. This, it is believed, is a new type of lease in as much as it is only granted to applicants who were, previous to the title being taken by the province, the owners of the land and is in reality merely a different method of tenure. Briefly it is a 20 year renewable lease which allows the lessee to retain ownership of all improvements, pay a yearly rental of 2 cents per acre for the unbroken portions and an eighth share of all crops harvested, unless the average yield is less than five bushels per acre. This lease, especially in the districts where the rainfall is more or less an uncertain factor, is preferable to title. It provides more security for a home, as neither liens nor judgments can ever be registered against it. It is meeting with a great deal of approval as evidenced by the numbers of applications received and the universal interest and requests for information with respect to its operation, which emanate not only from the Special Areas, but also from residents of all parts of the province.

Under the policy of exchanging privately owned lands for more desirable public lands, 28 applications were dealt with; of this number 15 were recommended and 13 refused.

The grass seed crop was light due to the unusually dry Spring in 1942. Abundant rains during June and July gave a good grain crop, but the earlier maturing grass seed requires moisture during April and May, with the result that yields in public lands were not worth harvesting. During the year 12,300 lbs. of clean crested wheat grass seed were harvested at an average cost of 3.72 cents per pound; 1,328 lbs. were received as crop share and returned on seed loaned, 2,800 lbs. purchased at .4c per pound and 5,890 lbs. were received from the Lethbridge Experimental Station under their policy to establish seed plots and to control Say's Grain Bug. This total of 22,318 lbs., together with the 1941 carryover of 13,712 lbs., makes a total of 36,030 lbs. Of this amount, 22,874 lbs. were distributed to 92 resident farmers leaving in storage 13,156 lbs. No Brome Grass seed was harvested or purchased in 1942. A total of 7,590 lbs. was carried over, of which 4,585 lbs. were distributed to 26 farmers. Total grass seed distributed to 118 resident farmers and ranchers for re-grassing public lands was 27,459 lbs., or sufficient to re-grass approximately 5,000 acres.

Applications for assistance under the Prairie Farm Rehabilitation Acts, regarding the construction of 55 dams and dugouts for stock watering purposes, and 6 domestic irrigation schemes were given the approval of the Special Areas Board.

During the last week in October, 1941, a meeting was held in the office of the Minister of Lands and Mines. Present at this meeting were Dr. Archibald, Dr. Fairfield, Mr. A. E. Palmer of the Dominion Department of Agriculture, the Minister, Hon. N. E. Tanner, Deputy Minister, Mr. J. Harvie and members of the Special Areas Board.

This meeting was called at the request of Dr. Archibald for the purpose of arriving at a better understanding of the efforts of both Governments to rehabilitate the drought areas of Alberta. A splendid spirit of co-operation was expressed by both Departments. It was arranged that Dr. Fairfield and his staff would meet with the Special Areas Board and work out all matters of detail.

On January 21st, 1942, a meeting was held in Hanna at which a report was submitted by Mr. A. B. Cook, P.F.R.A. engineer. Mr. Cook outlined a new irrigation project in connection with the Bartman Dam, which, in his estimation, was much more feasible than the original one. The new project necessitated the building of a new spillway in the east end of the dam and twelves miles of main ditch to deliver the water on some 1,500 acres south of the dam. Cost sheets were submitted which gave an estimated total cost of $13,242.90. It was agreed at the Hanna meeting that this project should be completed as outlined, the costs being divided equally between the Department of Lands and Mines and the P.F.R.A., the Special Areas being responsible for the construction of the main and lateral canals.

Work was commenced on October 26th and approximately three miles of the main ditch was completed, but owing to the early freeze-up it had to be discontinued. It is intended to complete this, if possible, in 1943 and prepare at least 100 acres for irrigation as a demonstration plot. Disposition of the balance of the irrigable lands will be given later consideration.

Ducks Unlimited completed projects in the following locations:—Township 34, range 12; a dam creating a reservoir of 70 acre-feet capacity, township 34, range 11, a reservoir of 350 acre-feet. A permanent water supply is now assured in each of these districts.

A new community pasture was set up in the Sounding Creek District comprising some 43,820 acres. Five community pastures are now operated, making some 249,260 acres of pasture land available to residents who, owing to their location, are unable to secure sufficient grazing lands adjacent to their home holdings. A total of 4,308 head of stock was pastured during the season.

Co-operating with the officials of the Wheat Acreage Reduction Act, a total of 2,565 applications and 2,570 statements of claim was taken by members of the Board's staff in the various offices.

The season of 1942, owing to the extremely wet summer and early freeze-up, was very disappointing in respect to the completion of road-work. The labour situation and the difficulty in securing repairs also had a decided bearing on the amount completed and cost of same. During the season completions were made covering 12 miles of high standard elevated grade. Part of it, however, was in very low-lying ground, where several long fills had to be built with bulldozers, which is responsible for the high cost of $244.00 per mile. Completion was also made of 206 miles of standard blade grade at $20.00 per mile. Auto patrols twice maintained 929 miles, and part of it three times. A special bridge crew was not employed and culverts and bridges were installed and repaired by the Board's machine operators during wet weather and by local labour. A total of

$5,479.86 was expended on the purchase of culvert and bridge material. The majority of this material was used in building culverts during the winter months in the Youngstown shop, old car and tractor rims being used for a foundation, all timber being treated with a mixture of Wainwright tar and Diesel oil.

The amount of $17,470.57 shown in the Financial Statement as road maintenance represents cash payments. In addition, road-work was completed and applied on taxes and relief to the amount of $3,349.90, making a total of $20,820.47 spent under this heading.

The Board is fully cognizant of the fact that more road-work should be done. Having sufficient moneys on hand therefore, every possible effort has been made to secure more up-to-date road machinery, but with little success, as all such equipment is under the control of the U. S. A. War Production Board.

In 1939 when the Special Areas Board took over control, there was only a comparatively small reserve. It therefore became necessary to conserve expenditures. The situation is now reversed. Funds are available, but the equipment is not available for purchase. It is a problem which must wait till the end of the war before it can be adjusted.

The following table contains statements of receipts and payments. The Special Districts Trust Account represents the collection and disbursement of moneys collected from privately owned lands, whilst the Special Areas Trust Account deals with public lands.

GOVERNMENT OF THE PROVINCE OF ALBERTA
DEPARTMENT OF LANDS AND MINES
SPECIAL AREAS AND SPECIAL DISTRICTS
CASH STATEMENT FOR THE FISCAL YEAR 1942-43
(Ending March 31, 1943)

CASH ON HAND MARCH 31, 1942 AND REVENUE FOR YEAR 1942-43:		
Cash in bank March 31, 1942—Special Districts Trust Account	$164,003.21	
General tax	319,715.64	
Social service taxes	45,216.05	
Interest collections on agricultural advances	266.74	
Miscellaneous	2,901.19	
Road maintenance applied on taxes	2,726.90	
Road maintenance applied on relief	623.00	
Bank interest	595.67	
Cash in bank March 31, 1942—Special Areas Trust Account	131,953.76	
1943 Special Areas collections on provincial lands	144,146.71	
Department of Education Special Grant	62,000.00	
Appropriation No. 1134	53,799.37	
Appropriation No. 1181	24,180.60	
Appropriation No. 1180	10,000.00	
TOTAL		$962,128.84
PAYMENTS:		
Social service taxes	$ 45,216.05	
Schools	210,888.44	
Hospitals	44,298.82	
Administration costs	53,799.37	
Provincial Mental Hospital	930.00	
Provincial Training School	495.00	
Mothers' allowances	4,864.99	
Blind pensions	254.86	
Direct relief	660.92	
Medical relief	18,580.80	
Interest on agricultural advances	266.74	
Charitable and hospital bills	5,599.80	
Road maintenance, cash	17,470.57	
Road maintenance, applied on taxes	2,726.90	
Road maintenance, applied on relief	623.00	
Pests and weeds	1,051.00	
Special Areas items charged to Special Districts Trust Account	2,434.35	
Land Titles Office fees	2,827.50	
Purchase of equipment	10,122.13	
Maintenance of equipment	14,391.92	
Purchase of accounting machines	3,984.61	
Hospital medical and indigent relief	1,778.01	
Old age pensions	15,502.80	
Maintenance of offices	880.59	
Liquidation of debentures of former school districts in the Special Areas	3,377.33	
Community pastures	8,834.06	
Grass seed	801.00	
Special Districts items charged to Special Areas Trust Account	791.56	
Miscellaneous	924.65	
TOTAL PAYMENTS		474,377.77
CASH BALANCE		$487,751.07

CASH BALANCE

Special Districts Trust Account	$222,463.72
Special Areas Trust Account	265,287.35
	$487,751.07

1942 LEVIES:

General Tax	$264,516.95
Social service tax	32,916.98
	$297,433.93

ASSESSMENTS

	Area (in acres)	Land	Minerals	Improvements	
1941	2,791,148	$11,247,738.00	$ 7,735.00	$935,071.00	$12,190,544.00
1942	2,480,253	10,366,822.00	7,120.00	939,541.00	11,313,483.00

J. HARVIE, *Deputy Minister*,
Department of Lands and Mines

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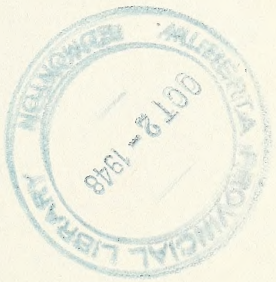
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